APPENDIX OF GENERAL RAPORT WP3

ANALITICAL RESEARCHES

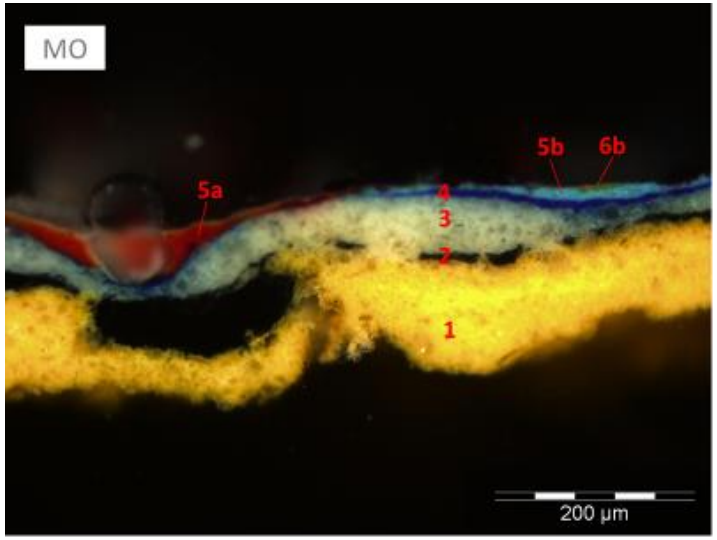
UNITO – CCR

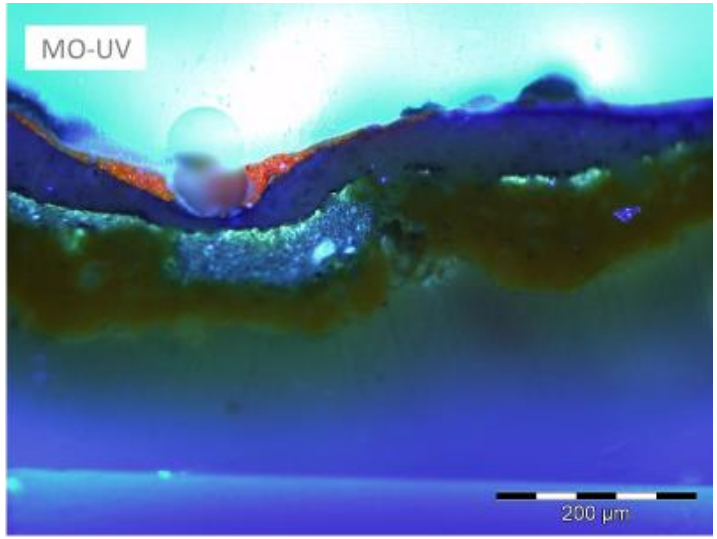
NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Mural (Object 1)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**Via Ragazzoni**
OWNER / CUSTODIAN:	**Turin Municipality**
ARTIST:	**CORN79, CND, RESER, VESOD,WENS**
TITLE OF THE WORK:	**No title**
YEAR OF EXECUTION:	**2011**
MATERIALS:	**Mixed painting on bricks**

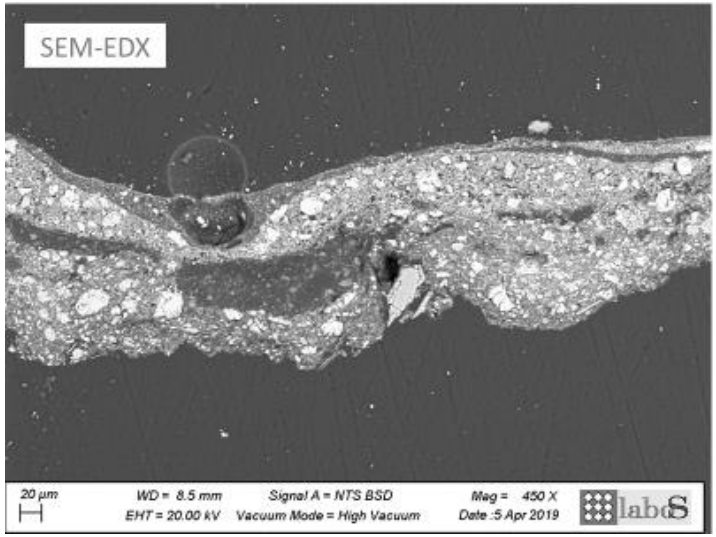
	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**Shine black paint layer**	x		ATR-FTIR	Silactees, calcite	ATR-FTIR Py-GC/MS	Alkyd-Nitro			ATR-FTIR	Oxalates
2	**Background paint layer**	x		ATR-FTIR	Talc, calcite	ATR-FTIR	PVA			ATR-FTIR	Oxalates
3	**Red paint layer**	x		ATR-FTIR	Silicates, calcite, PR 48	ATR-FTIR Py-GC/MS	Alkyd-Nitro			ATR-FTIR	Oxalates
4	**Purple paint layer**	x		ATR-FTIR	Cinquasia Violet (PV 19), silicates	ATR-FTIR Py-GC/MS	Alkyd				
5	**Grey paint layer**	x		ATR-FTIR	Calcite, silicates	ATR-FTIR	Styrene-acrylic				
6	**Orange paint layer**	x		ATR-FTIR	Silicates, possibly PO16	ATR-FTIR	Alkyd-Nitro			ATR-FTIR	Oxalates

7	**Cross section**	x									
8	**Blue paint layer**	x		ATR-FTIR SEM-EDS	Calcite, Kaoline, Ti white	ATR-FTIR	Alkyd-Nitro			ATR-FTIR	Oxalates
9	**Light blue paint layer**	x		ATR-FTIR SEM-EDS	Calcite, talc	ATR-FTIR	Acrylic			ATR-FTIR	Oxalates
10	**Cross section**	x									
11	**Light green paint layer**	x		ATR-FTIR SEM-EDS	Silicates, Ti white	ATR-FTIR	Alkyd-Nitro			ATR-FTIR	Oxalates
12	**White paint layer**	x		ATR-FTIR SEM-EDS	Silicates, Ti white	ATR-FTIR Py-GC/MS	Alkyd-Nitro			ATR-FTIR	oxalates
13	**Orange paint layer**	x		ATR-FTIR	Caclite, silicates, PO 34	ATR-FTIR Py-GC/MS	Styrene-modified Alkyd (main) - VA/VeoVa (secondary)			ATR-FTIR	oxalates
14	**Support**	x						XRD	Quartz, K-Feldspate (microcline), Plagioclase (Albite)		

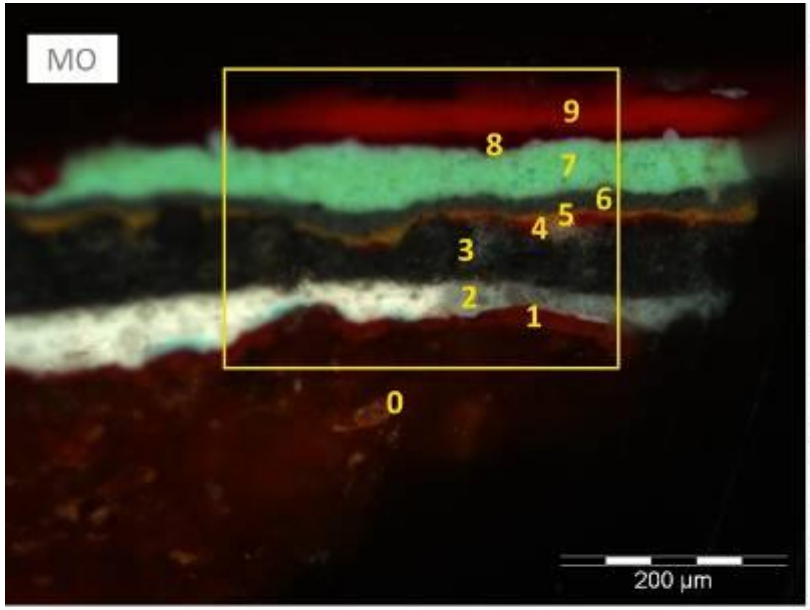
*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

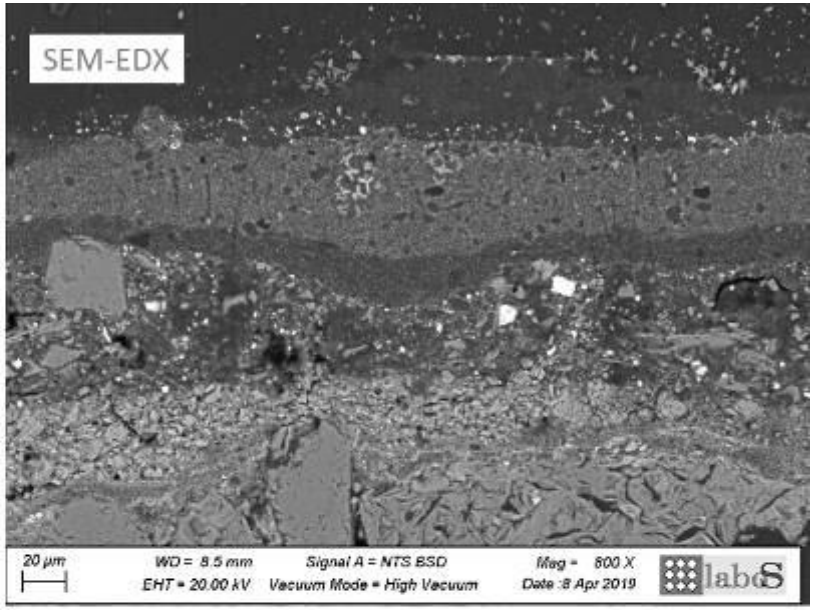




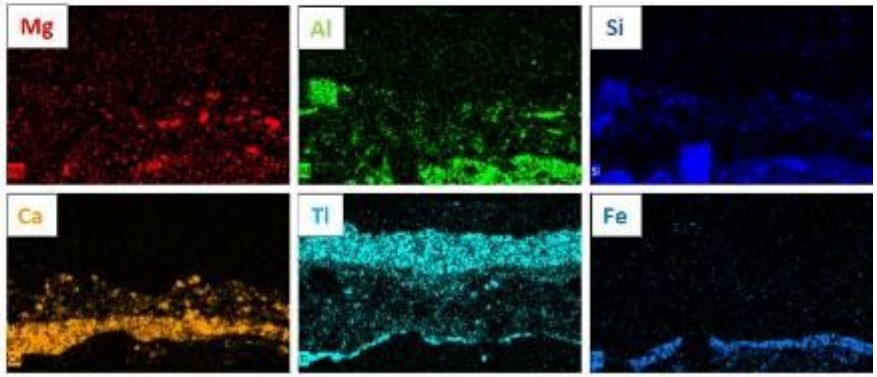


1 – yellow	Al, Si, Ca, Ti, Cl, (S)
2 – black	Al, Si
3 – white	Al, Si, Ca, Ti
4 – blue	Ti
5a – red	organic, (Si), (Ca), (Ti)
5b – light blue	Ti, Ca, (Al), (Si), (Mg)
6b – yellow	Si, Ti, (Ca)





0 - support	**Al**, **Si**, **K**, Mg, **Fe**, (Na), (Ca)
1 – red	**Fe**, Si, Ca
2 – white	**Ca**, Si, Al, Ti
3 – grey	**Si**, Al, Ca, Tl
4 – red 5 – yellow 6 – dark green	organic? Ti, (Fe)
7 – light green	**Ti**, Na, (Si), (Cl)
8 – dark red	Cl, Ti, (Si), (Al), (Na)
9 – red	**Cl**, **Ti**, (Si), (Al)

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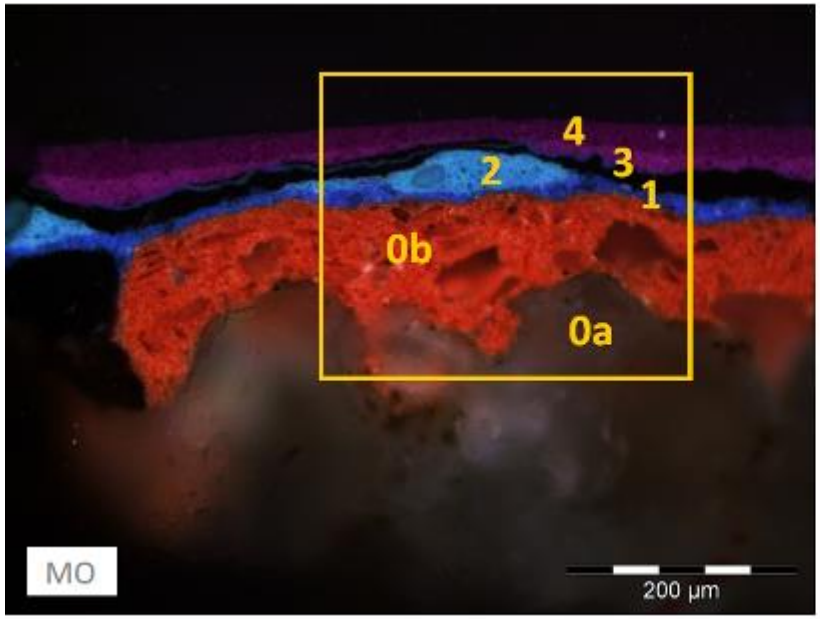
NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Mural (Object 2)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**Via Carso (Giardini De Valle)**
OWNER / CUSTODIAN:	**Turin Municipality**
ARTIST:	**BIGTATO, JOES, PIOVE, WENS, IBS**
TITLE OF THE WORK:	**WE LOVE ENAK**
YEAR OF EXECUTION:	**2011**
MATERIALS:	**Spray painting on brick**

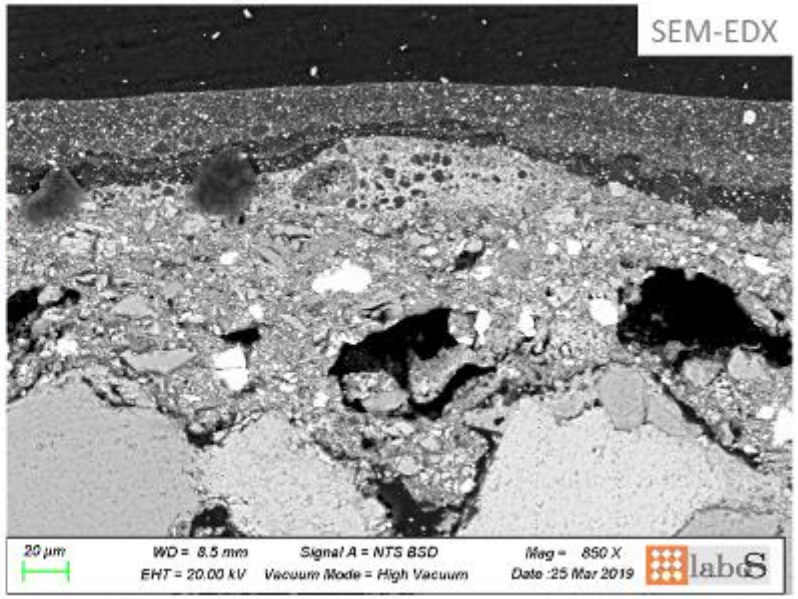
	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**Background paint layer**	x		ATR-FTIR	Calcite, silicates	ATR-FTIR	Possibly PVA				
2	**White paint Layer**	x		ATR-FTIR Py-GC/MS	Silicates, Ti white	ATR-FTIR Py-GC/MS	Styrene-modified alkyd (main), VA/VeoVa (secondary)				
3	**Purple paint layer**	x		ATR-FTIR SEM-EDS	Cinquasia Violet (PV 19), silicates, calcite, Ti white	ATR-FTIR	Alkyd			ATR-FTIR	Oxalates

4	**Light blue paint layer**	x		ATR-FTIR SEM-EDS	Silicates, Ti white	ATR-FTIR	Alkyd			ATR-FTIR	Oxalates
5	**Orange paint layer**	x		ATR-FTIR	Calcite, silicates, possibly PO 5	ATR-FTIR Py-GC/MS	Styrene-modified alkyd (main), VA/VeoVa (secondary)				
6	**Orange paint layer**	x		ATR-FTIR	Calcite, silicates	ATR-FTIR	Alkyd			ATR-FTIR	Oxalates
7	**Black paint layer**	x		ATR-FTIR	Calcite, silicates	ATR-FTIR Py-GC/MS	Styrene-modified alkyd (main), VA/VeoVa (secondary)			ATR-FTIR	Oxalates
8	**Green paint Layer**	x		ATR-FTIR	Calcite	ATR-FTIR	Alkyd				
9	**Dark green paint layer**	x		ATR-FTIR	Silicates	ATR-FTIR	Alkyd			ATR-FTIR	Oxalates
10	**Purple paint layer**	x		ATR-FTIR	Silicates	ATR-FTIR	Alkyd			ATR-FTIR	Oxalates
11	**Support**	x						XRD	Quartz, K-feldspate (Microcline), Hematite, Plagioclase (Albite)		

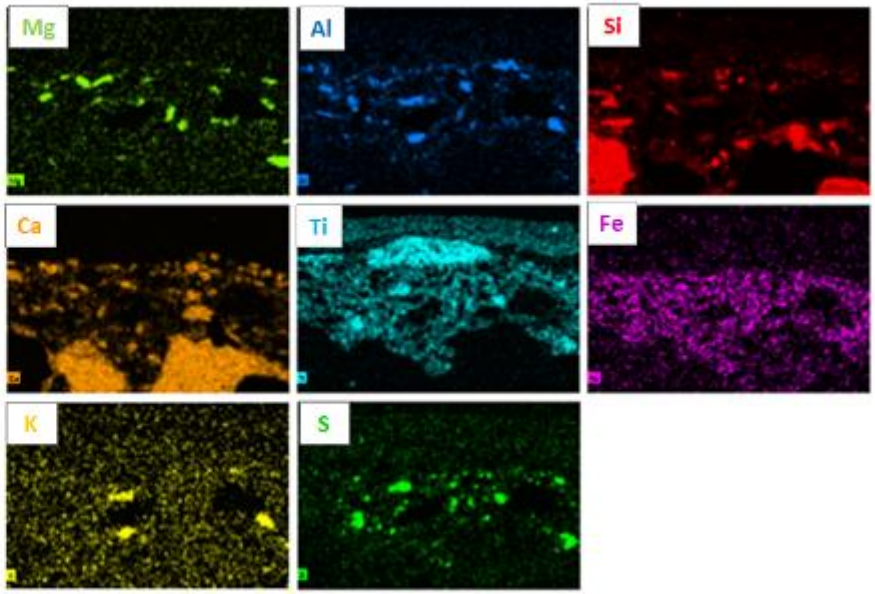
*** mortars, stone, metal ect.**

**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**





0a - support	Aggregates of Ca, (Mg), (Sr) Aggregates Si, Na, K
0b – support	Ca, Si, Al, Fe, Mg + aggregates of $BaSO_4$
1 – blue	Ti, S, Ca, Si, (Al), (Fe)
2 – light blue	**Ti**, Si, Al, (Ca), (Mg)
3 – light purple	Ti, Si, (Al), (S)
4 – dark purple	Ti, Si, (Al), (S)

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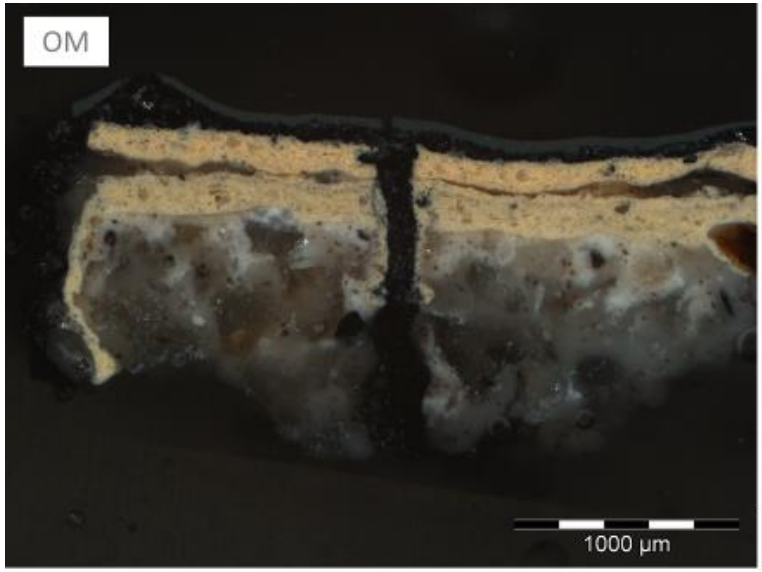
NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Mural (Object 3)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**Cso Valdocco corner Via Santa Chiara**
OWNER / CUSTODIAN:	**Municipality of turin and State Archives**
ARTIST:	**Various**
TITLE OF THE WORK:	**Memorial Thyssen victims' tragedies**
YEAR OF EXECUTION:	**2008**
MATERIALS:	**Spray painting on plaster**

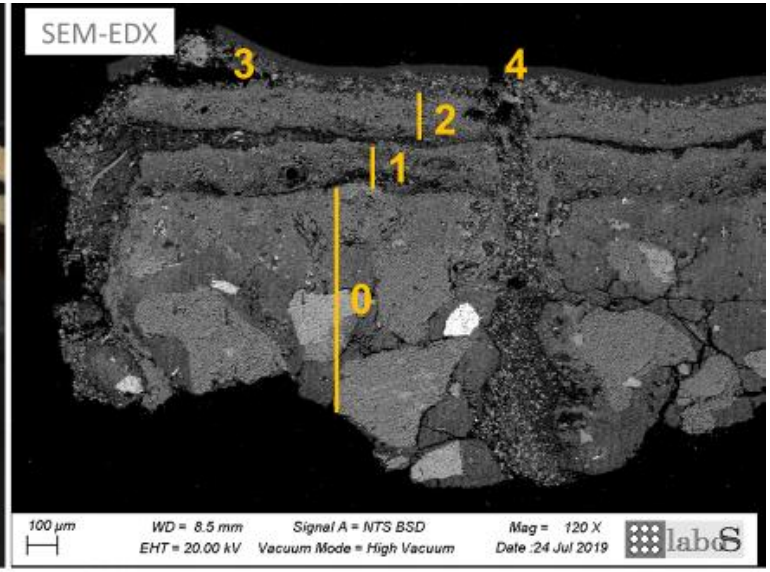
	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**Black paint layer**	x		ATR-FTIR	Calcite, kaolin	ATR-FTIR Py-GC/MS	Styrene-acrylic			Py-GC/MS	VA/VeoVa (Protective coating)
2*	**Grey paint layer**	x		ATR-FTIR XRF SEM-EDS	Kaolin, Ti white	ATR-FTIR	Alkyd-nitro				
*	**Cross section**										
3	**Light yellow paint layer**	x		ATR-FTIR XRF	Talc, PY74, Ti white	ATR-FTIR	Alkyd-nitro				

4	**Red paint layer**	x		ATR-FTIR	Calcite, kaolin	ATR-FTIR Py-GC/MS	Styrene-acrylic			Py-GC/MS	VA/VeoVa (Protective coating)
5	**Orange paint layer**	x		ATR-FTIR XRF	PO36, Kaolin, Ti white	ATR-FTIR Py-GC/MS	Alkyd-nitro			Py-GC/MS	VA/VeoVa (Protective coating)
6*	**Light grey paint layer**	x		ATR-FTIR XRF SEM-EDS	Kaolin, Ti white	ATR-FTIR	Alkyd-nitro			ATR-FTIR	Oxalates
*	**Cross section**										
7	**Light yellow paint layer**	x		ATR-FTIR XRF	Kaolin, calcite, Ti white	ATR-FTIR	Possibly* styrene-acrylic			ATR-FTIR	Oxalates
8*	**White paint layer**	x		ATR-FTIR XRF SEM-EDS	Kaolin, calcite, Ti white	ATR-FTIR	Possibly* styrene-acrylic			ATR-FTIR	Oxalates
*	**Cross section**										
9	**Light yellow paint layer**	x		ATR-FTIR XRF	Silicates, Ti white	ATR-FTIR	Alkyd-nitro				
10	**Light grey paint**	x		ATR-FTIR XRF	Calcite, silicates, Ti white	undetected	undetected				
11*	**Red paint layer**	x		ATR-FTIR XRF SEM-EDS	Possibly PR48 or PV 19, kaolin, Ti white	ATR-FTIR Py-GC/MS	Alkyd-nitro (main) styrene-acrylic (secondary or				VA/VeoVa (Protective coating)

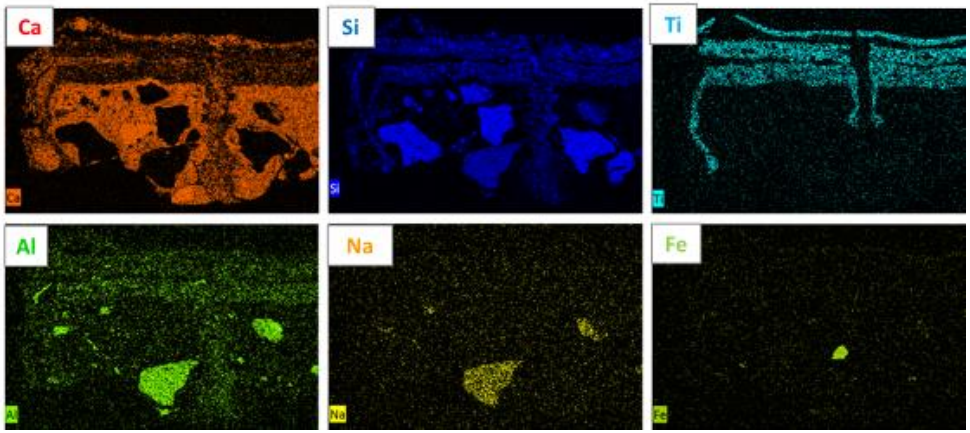
							interference)				
*	**Cross section**										
12	**Black paint layer**	x		ATR-FTIR XRF	Silicates, Ti white	ATR-FTIR	Alkyd-nitro			ATR-FTIR	Oxalates
13	**Grey paint layer**	x		ATR-FTIR XRF	Silicates, Ti white	ATR-FTIR	Alkyd-nitro			ATR-FTIR	Oxalates
14 *	**Support**	x		ATR-FTIR SEM-EDS	Calcite, silicates					SEM-EDS	Ti White (finishing layer)
*	**Cross section**										
15	**Light yellow paint layer**	x		ATR-FTIR	undetected	ATR-FTIR	Acrylic and nictrocellulose				
16	**Red paint layer**	x		ATR-FTIR	Calcite, silicates, trace of gypsum	ATR-FTIR	Acrylic				
17	**Red paint layer**	x		SEM-EDS	Bismuth yellow, silicates						
*	**Cross section**										
18	**Light yellow paint layer**	x		ATR-FTIR	Quartz, calcite	ATR-FTIR	Acrylic				

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH**





0 – support	Carbonates + and Na, Al, Mg silicate inclusions
1, 2 – yellow	**Si, Ti,** Ca, (K)
3 – black	**Si, Ca,** (K), (Mg)
4 – grey	**Ti,** Si, Ca, Al, Fe



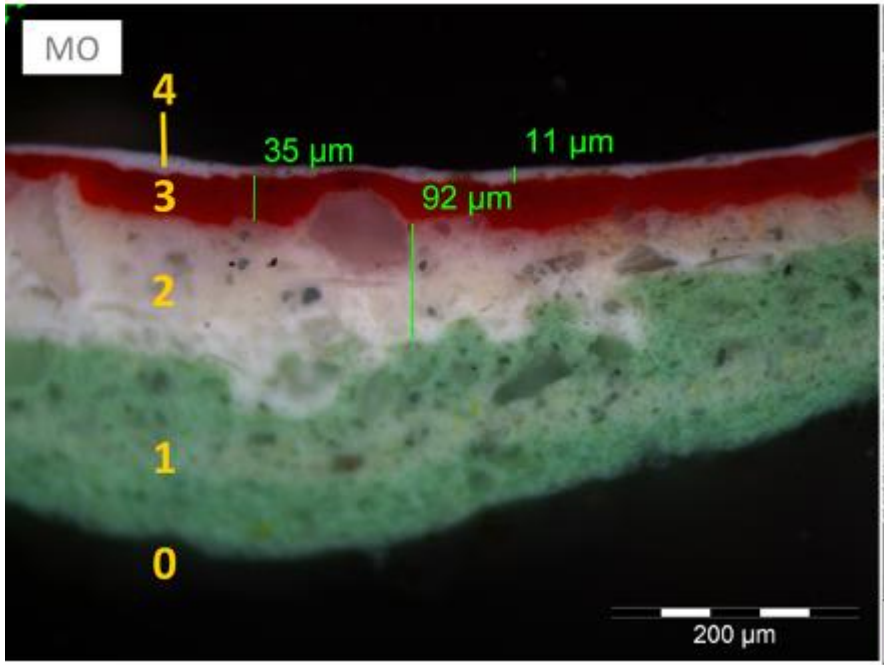

Antonio Roberto
Angelo Bruno Rocco
Rocco Giuseppe

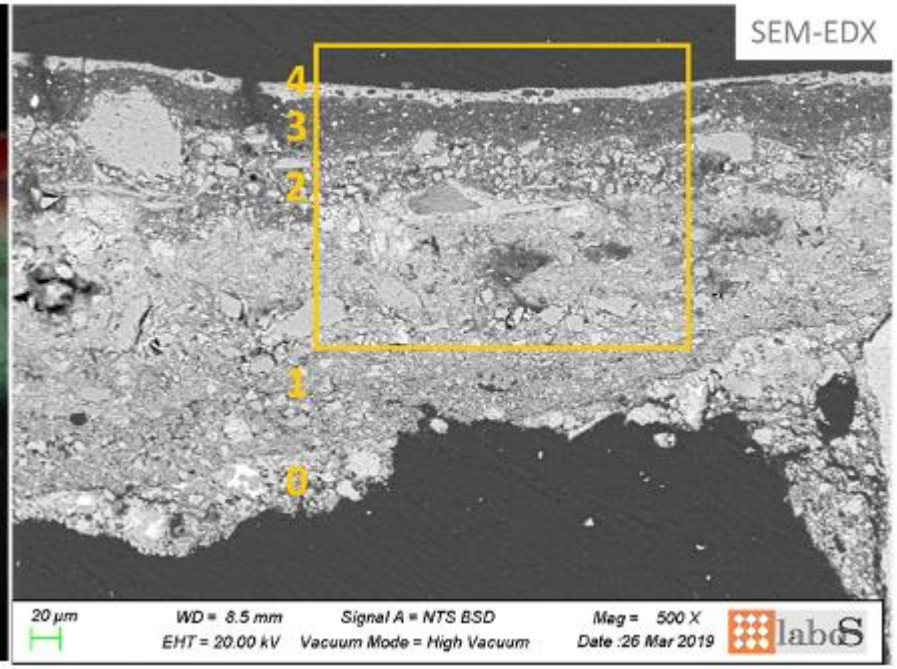
NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Mural (Object 4)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**Via Spalato 59**
OWNER / CUSTODIAN:	**Digital Group S.r.l.**
ARTIST:	**Truly Design**
TITLE OF THE WORK:	**No title**
YEAR OF EXECUTION:	**2010**
MATERIALS:	**Mixed painting on plaster**

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**Background white paint layer**	x		ATR-FTIR SEM-EDS	Calcite, quartz, Ti white	ATR-FTIR	Possibly styrene-acrylic				
2	**Cross section**	x									
3	**Cross section**	x									
4	**Shiny black paint layer**	x		ATR-FTIR	Silicates	ATR-FTIR	Alkyd				
5	**Salts**	x								FTIR-ATR	Organic contamination
6	**Red-orange paint layer**	x		ATR-FTIR	Quartz	ATR-FTIR Py-GC/MS	Styrene-modified alkyd				

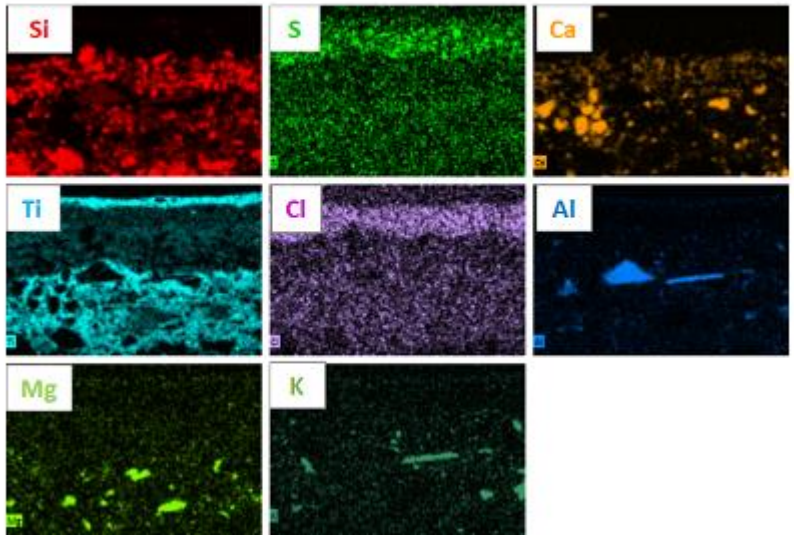
7	**Dark red paint layer (applied by brush)**	x		ATR-FTIR SEM-EDS	Silicates, Barite,Ti white, possibly PR 48	ATR-FTIR	Alkyd				
8	**Dark red paint layer**	x		ATR-FTIR	Silicates	ATR-FTIR Py-GC/MS	Styrene-modified alkyd				
9	**Cross section**	x									
10	**White paint layer**	x		ATR-FTIR SEM-EDS	Quartz, Ti white	ATR-FTIR Py-GC/MS	Styrene-modified alkyd				
11	**Opaque black paint layer**	x		ATR-FTIR	Calcite, quartz	ATR-FTIR	Styrene-modified alkyd				
12	**Shiny black paint layer**	x		ATR-FTIR		ATR-FTIR Py-GC/MS	Styrene-modified alkyd				

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**





0 – support	**Ca,** Al, Si, (Ti), (P), (S), (Mg)
1 – green	**Si,** Ti, Ca, (Al), (Mg), (Cl) + quartz inclusion
2 – white	**Si,** Ca, Ti, (Al), (Cl)
3 – red	Organic? (Ti), (Cl), (Si) + aggregates of $BaSO_4$
4 – white	**Ti**, (Si), (S), (Al), (Mg), (P), (Cl), (Ca)




Dampiamo Arte, dampiamo con Arte!
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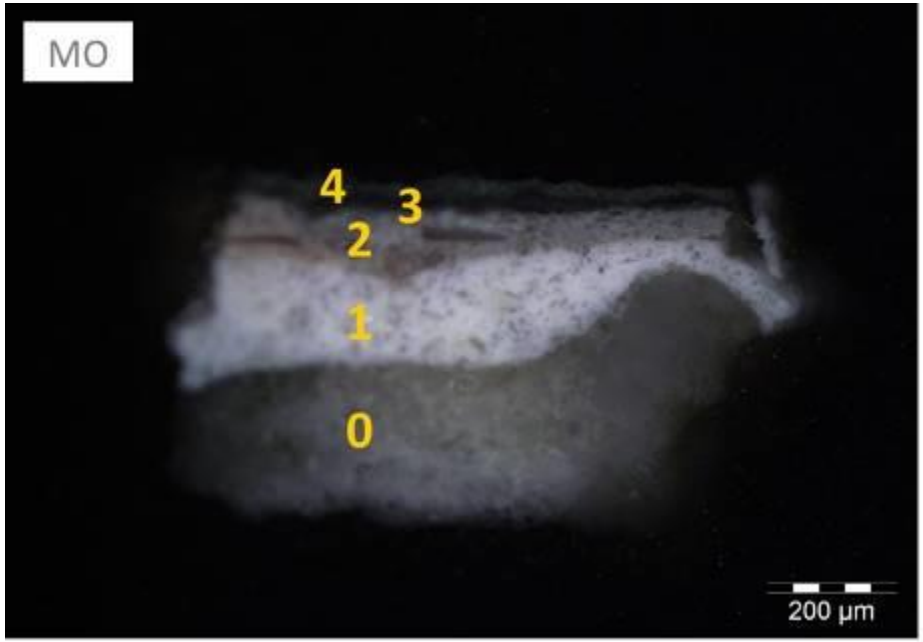
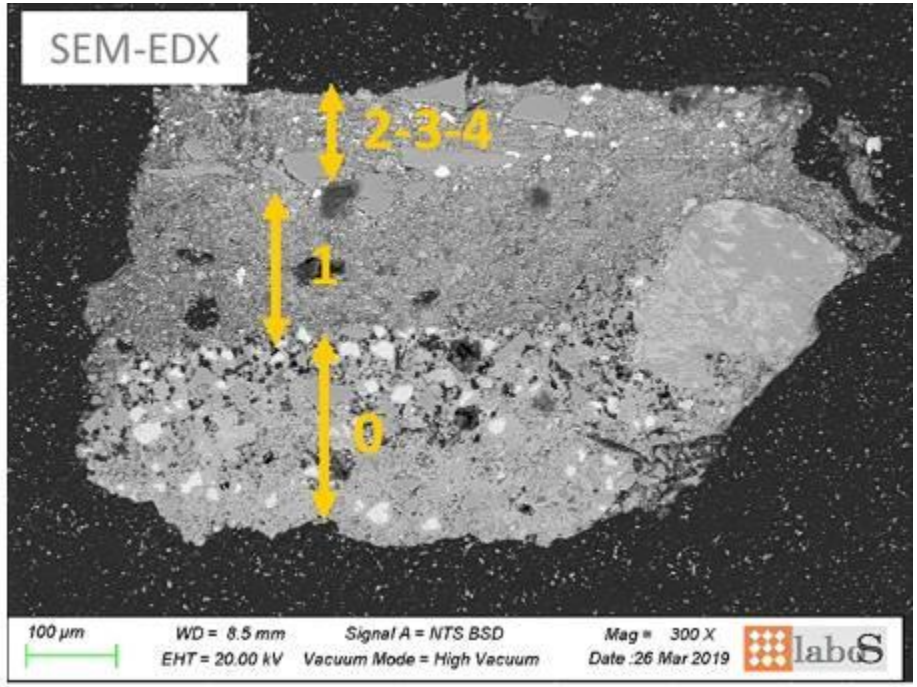
NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Mural (Object 6)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**Piazza Moncenisio**
OWNER / CUSTODIAN:	**MAU - Museum of Urban Art**
ARTIST:	**Elisabetta Viarengo Miniotti**
TITLE OF THE WORK:	**Bosco**
YEAR OF EXECUTION:	**1995**
MATERIALS:	**Brush painting on mural**

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**Military green paint layer**			ATR-FTIR SEM-EDS	Calcite, Ti white	ATR-FTIR Py-GC/MS	Styrene-acrylic			Py-GC/MS	VA/VeoVa (Protective coating)
2	**Black paint layer**			ATR-FTIR	Calcite, silicates	ATR-FTIR Py-GC/MS	Styrene-acrylic			Py-GC/MS	VA/VeoVa (Protective coating)
3	**Oil green paint layer**			ATR-FTIR SEM-EDS	Calcite, silicates, barite, Ti white	ATR-FTIR	Possibly styrene-acrylic				

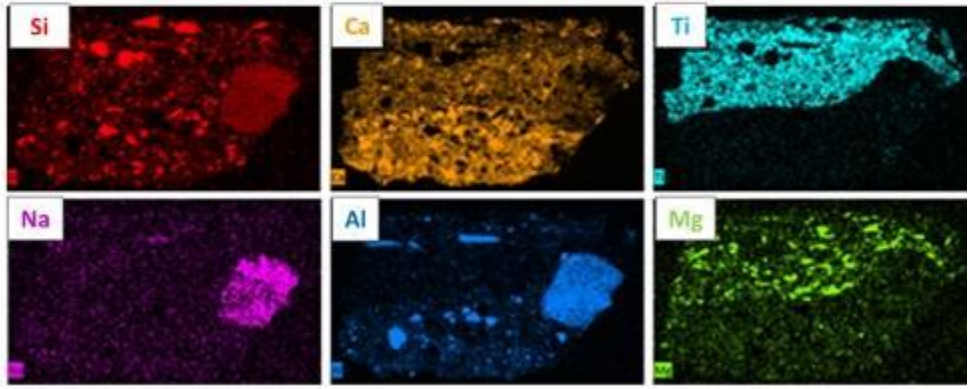
4	**Orange paint Layer**			ATR-FTIR	Calcite, silicates, possibly PO 5	ATR-FTIR Py-GC/MS	Styrene-acrylic			Py-GC/MS	VA/VeoVa (Protective coating)
5	**Pale yellow paint layer**			ATR-FTIR	Calcite, silicates	ATR-FTIR	Possibly styrene-acrylic				
6	**Pale pink paint layer**			ATR-FTIR SEM-EDS	Calcite, talc, Ti white	ATR-FTIR	Possibly styrene-acrylic			ATR-FTIR	oxalates
7	**Brown paint layer**			ATR-FTIR	Calcite, silicates	ATR-FTIR	Possibly styrene-acrylic				
8	**Cross Section**										
9	**Protective Layer**					ATR-FTIR Py-GC/MS	VA/VeoVa			ATR-FTIR	Calcite, silicates (contamination from the paint layer brown)

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**





0 – support	**Ca**, Al, Si, (Na), (S), (Cl) + carbonate aggregates + quartz inclusions + Na,Al-silicate inclusion + Ca-aluminate aggregates
1 – white	**Ca, Si, Ti,** (Al), (Mg)
2 – pale pink **3 – oil green** **4 – military green**	**Si, Ca,** Ti, Al, (Mg) + $BaSO_4$ aggregates + quartz inclusion

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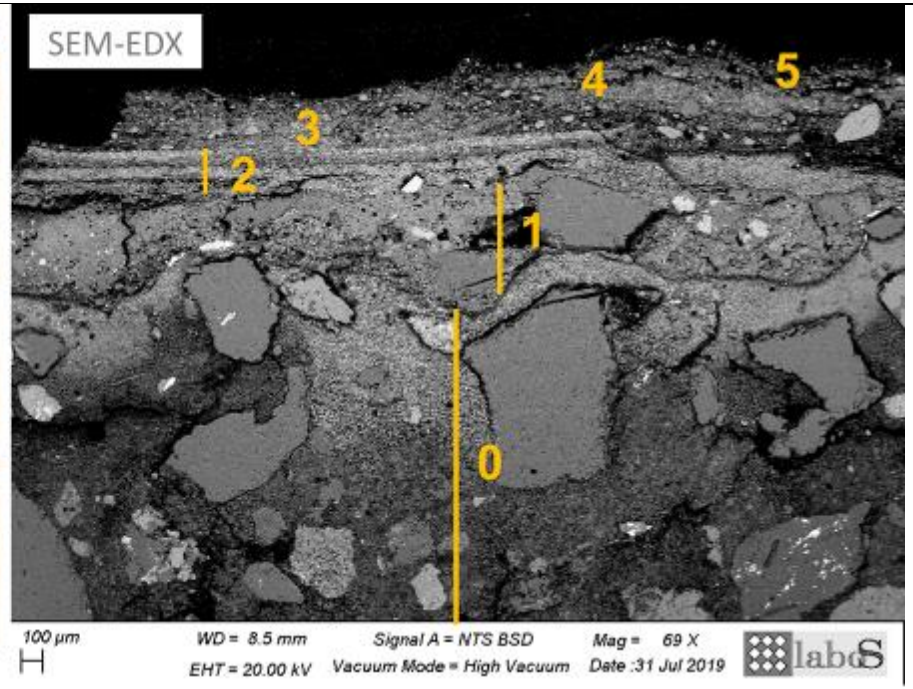
Tipografia

NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Mural (Object 7)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**Cso Palermo 124**
OWNER / CUSTODIAN:	**Private property**
ARTIST:	**Millo**
TITLE OF THE WORK:	**Dive in me**
YEAR OF EXECUTION:	**2014**
MATERIALS:	**Brush painting on mural**

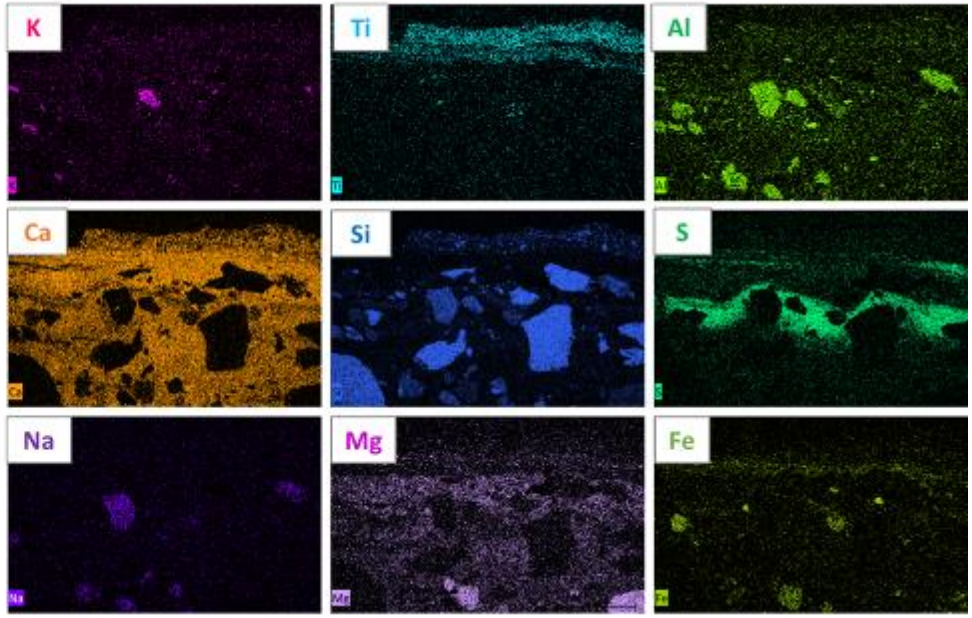
	Name of the sample	Original materials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	White background layer	x		ATR-FTIR XRF SEM-EDS	Calcite, silicates, Ti white	ATR-FTIR	Styrene-acrylic				
2	Black paint layer (drawing)	x		ATR-FTIR XRF	Calcite, silicates	ATR-FTIR	Styrene-acrylic			ATR-FTIR	oxalates
3	Yellow paint layer	x		ATR-FTIR SEM-EDS	Calcite, silicates	ATR-FTIR	PVA				
4	Grey paint layer	x		ATR-FTIR	Silicates	ATR-FTIR	PVA				
5	Pink layer (dripping)		x	ATR-FTIR	Calcite, silicates	ATR-FTIR	PVA			ATR-FTIR	oxalates

6	Violet layer (dripping)		x	ATR-FTIR	Calcite	ATR-FTIR	PVA			ATR-FTIR	acrylic
7	**Cross section (Random fragment)**										

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**



0 – support	Carbonates + quartz and Al,Mg,Fe,K silicates inclusions + gypsum
1 – white	Carbonates + quartz inclusions + barium sulfate inclusions
2 – yellow-brown *(3 layers)*	**Ca**, Ti, Fe
3 – yellow	Carbonates + silicates + Ti white
4 – white	**Si, Ca, Ti**
5 – black	**Si**, (Ca), (Cu), (Zn)

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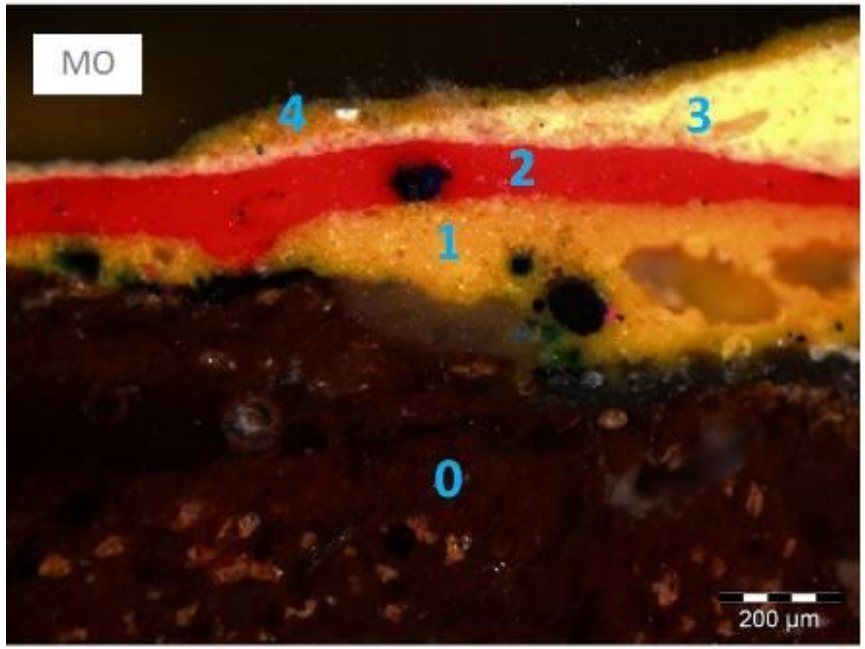
NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Mural (Object 8)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**Piazza Campidoglio - corner Via Musiné**
OWNER / CUSTODIAN:	**MAU - Museum of Urban Art**
ARTIST:	**Spider, Vito Navolio**
TITLE OF THE WORK:	**Guardare Oltre**
YEAR OF EXECUTION:	**2015**
MATERIALS:	**Mixed painting on bricks**

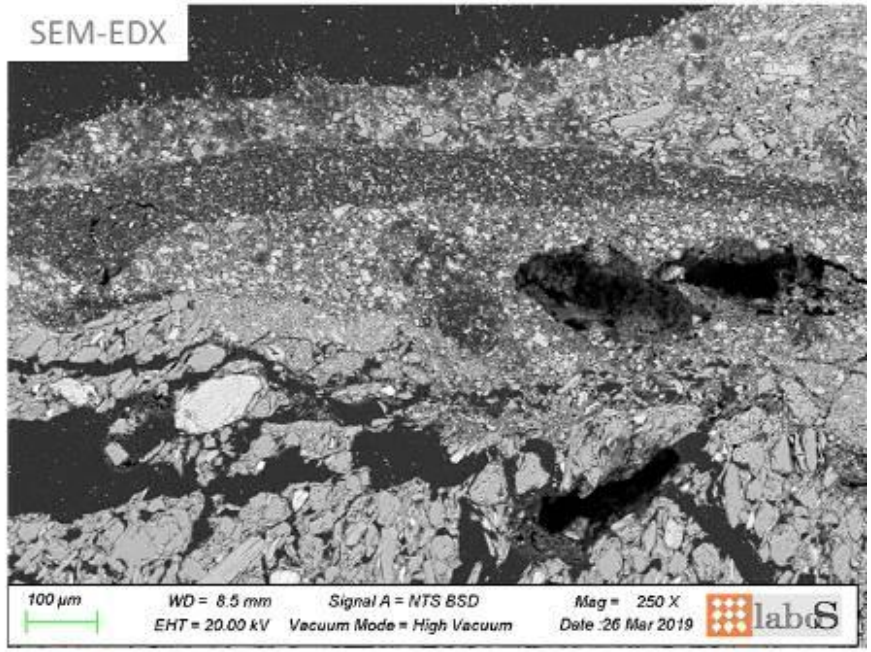
	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**Cross section**	x									
2	**Cross section**	x									
3	**Cross section**	x									
4	**Light blue paint layer**	x		ATR-FTIR	Calcite, silicates	ATR-FTIR	Styrene-Acrylic				
5	**Dark blue paint layer**	x		ATR-FTIR	Calcite, silicates	ATR-FTIR	Styrene-Acrylic				

6	**Purple paint layer**	x		ATR-FTIR	Calcite, silicates and Cinquasia Violet (PV 19)	ATR-FTIR	Styrene-Acrylic				
7	**Military green paint layer**	x		ATR-FTIR	PY151, calcite	ATR-FTIR Py-GC/MS	Styrene-Acrylic (main), PVA (secondary)				
8	**Dark green paint layer**	x		ATR-FTIR	Calcite, silicates, PY151	ATR-FTIR	Possibly styrene-Acrylic			ATR-FTIR	oxalates
9	**Smerald green paint layer**	x		ATR-FTIR	Calcite, quartz	ATR-FTIR	Acrylic				
10	**Dark yellow paint layer**	x		ATR-FTIR SEM-EDS	Calcite, silicates, Ti white	ATR-FTIR	Acrylic				
11	**Cross section**	x		See pictures below							
12	**Light yellow layer**	x		ATR-FTIR SEM-EDS	Calcite, silicates, Ti white	ATR-FTIR	Acrylic				
13	**Red layer**	x		ATR-FTIR SEM-EDS	Calcite, silicates, Ti white, PR 48	ATR-FTIR Py-GC/MS	Styrene-Acrylic				
14	**White layer**			ATR-FTIR	Calcite, silicates	ATR-FTIR Py-GC/MS	Acrylic			ATR-FTIR	oxalates
15	**Black layer**			ATR-FTIR	Calcite, silicates	ATR-FTIR Py-GC/MS	Styrene-Acrylic			ATR-FTIR	oxalates

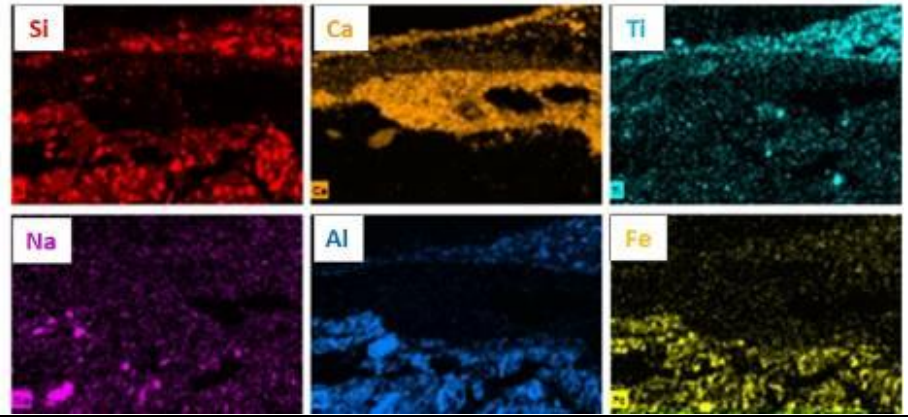
*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

OBJ8_11





0 – support	**Si, Al**, Fe, (Mg), (Na), (Ti)
1 – yellow	**Ca**, Si, (Al), (Ti), (Mg), (Fe)
2 – red	organic? Ca, Si, Ti, (Mg), (Al)
3 – light yellow	**Si, Al**, Ca, Ti, K, (Mg) + quartz inclusions
4 – yellow	**Ca, Si,** Ti, (Mg), (Bi)

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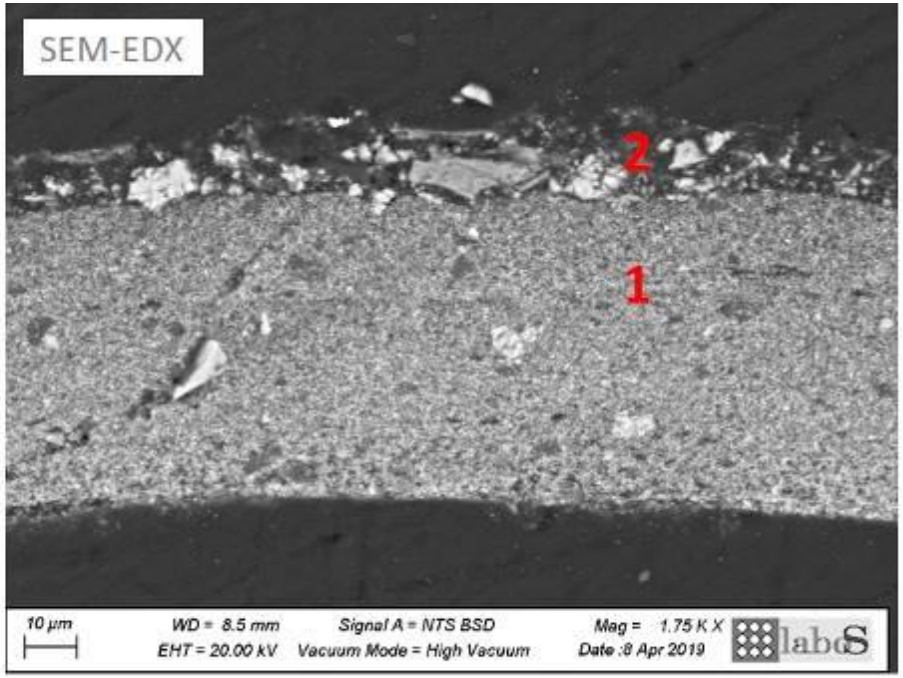
NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Painted Metal Gate (Object 9)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**C.so Farini - corner Largo Berardi**
OWNER / CUSTODIAN:	**MAU - Museum of Urban Art**
ARTIST:	**Halo Halo**
TITLE OF THE WORK:	**No title**
YEAR OF EXECUTION:	**2010**
MATERIALS:	**Brush painting on metal**

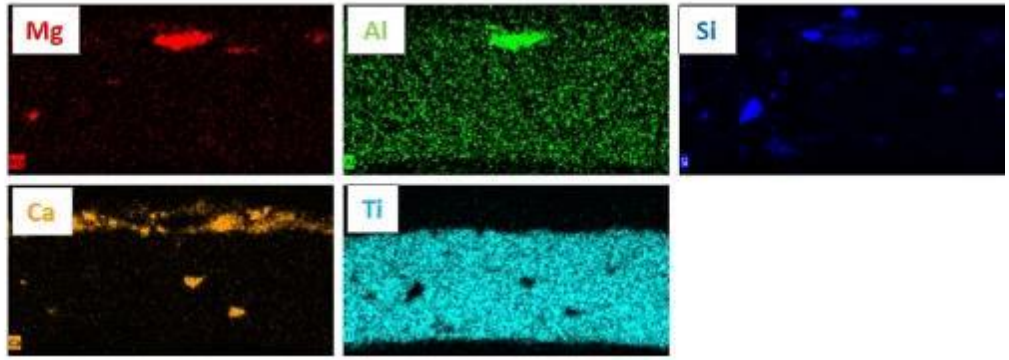
	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**Cross section**	X		See pictures below							
2	**Cross section**	X									
3	**Black layer**	X		ATR-FTIR	Calcite, silicates	ATR-FTIR PY-GC/MS	Styrene-Acrylic				
4	**White Layer**	X		ATR-FTIR SEM-EDS	Ti white	ATR-FTIR PY-GC/MS	Nitrocellulose + Styrene-Acrylic				
5	**White paint filtering**	X		ATR-FTIR	Calcite, silicates	ATR-FTIR	Styrene-Acrylic				
6	**Rust**	X		ATR-FTIR	Iron oxide	ATR-FTIR	-				
7	**Adehesive layer**	X		ATR-FTIR	Kaolin	ATR-FTIR	Styrene-Acrylic				
8	**Black marker**	X		ATR-FTIR	Silicates	ATR-FTIR	Styrene-Acrylic				

*** mortars, stone, metal ect. ** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

OBJ9_1



1 – white	**Ti**, (Al), (Si), (Ca) + quartz inclusions + carbonate aggregates + Al-silicate aggregates, with Ca, P
2 – black	**Ca,** Al, Si, Mg + carbonate aggregates + Mg,Al-silicate aggregates

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NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Painted Metal Panel (Object 10)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**Via Rocciamelone 7**
OWNER / CUSTODIAN:	**MAU - Museum of Urban Art**
ARTIST:	**Gianna Gianasso**
TITLE OF THE WORK:	**Wanda**
YEAR OF EXECUTION:	**2000**
MATERIALS:	**Brush painting on metal**

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**Blue layer**	x		ATR-FTIR	Calcite, silicates	ATR-FTIR	PVA			ATR-FTIR	oxalates
2	**Red layer**	x		ATR-FTIR	Probably organic pigment, calcite	ATR-FTIR Py-GC/MS	Acrylic				
3	**White layer**	x		ATR-FTIR	Calcite, Ti white	ATR-FTIR Py-GC/MS	Styrene-Acrylic				
4	**Copper layer**	x		ATR-FTIR	n.i.	ATR-FTIR	PVA				
5	**Black layer background**	x		ATR-FTIR	Barite, talc, probably gypsum	ATR-FTIR Py-GC/MS	Styrene-Acrylic				

*** mortars, stone, metal ect**

**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Painted Benches (Object 11)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**Piazza Moncenisio**
OWNER / CUSTODIAN:	**MAU - Museum of Urban Art**
ARTIST:	**Vito Navolio**
TITLE OF THE WORK:	**Panchine d'artista**
YEAR OF EXECUTION:	**2010**
MATERIALS:	**Brush painting on wood**

	Name of the sample	Original materials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
	Pollock's Bench (E)										
1	**Yellow paint of seatback**	X		ATR-FTIR	PY151	ATR-FTIR Py-GC/MS	Alkyd				
2	**Blue paint of the seatback**	X		ATR-FTIR SEM-EDS	Silicates, Barite	ATR-FTIR	Alkyd				
3	**Red paint of the seatback**	X		ATR-FTIR SEM-EDS	Silicates, Ti white	ATR-FTIR Py-GC/MS	Alkyd				
4	**Shiny black paint of the seatback**	X		ATR-FTIR SEM-EDS	Barite, silicate	ATR-FTIR	Alkyd				
5	**White paint of the seatback**	X		ATR-FTIR	Silicates, Zn white	ATR-FTIR Py-GC/MS	Alkyd				

6	**White paint of the seatback background**	X		ATR-FTIR	Silicates	ATR-FTIR	Alkyd			ATR-FTIR	oxalates
7	**Shiny black paint of the seatback background**	x		ATR-FTIR	Silicates	ATR-FTIR	Alkyd				
8	**White paint of the seatback profile**	X		ATR-FTIR SEM-EDS	Zn white, silicates	ATR-FTIR	Alkyd				
9	**Cross section**	X		See pictures below							
10	**Silver paint of seat bench**	X		ATR-FTIR	Talc, Zn white	ATR-FTIR	Alkyd				
11	**Green paint of the entire bench**	X		ATR-FTIR	Calcite, silicates	ATR-FTIR	Acrylic			ATR-FTIR	oxalates
12	**Opaque black paint of the seat profile**	X		ATR-FTIR	Calcite, silicates	ATR-FTIR	Alkyd			ATR-FTIR	oxalates
12a	**Shiny black paint of the seat profile**	X		ATR-FTIR	Calcite	ATR-FTIR	Alkyd			ATR-FTIR	oxalates
13	**Cross Section**	X									
14	**White paint of the seat bench background**	X		ATR-FTIR	Silicates, calcite	ATR-FTIR	Alkyd			ATR-FTIR	oxalates

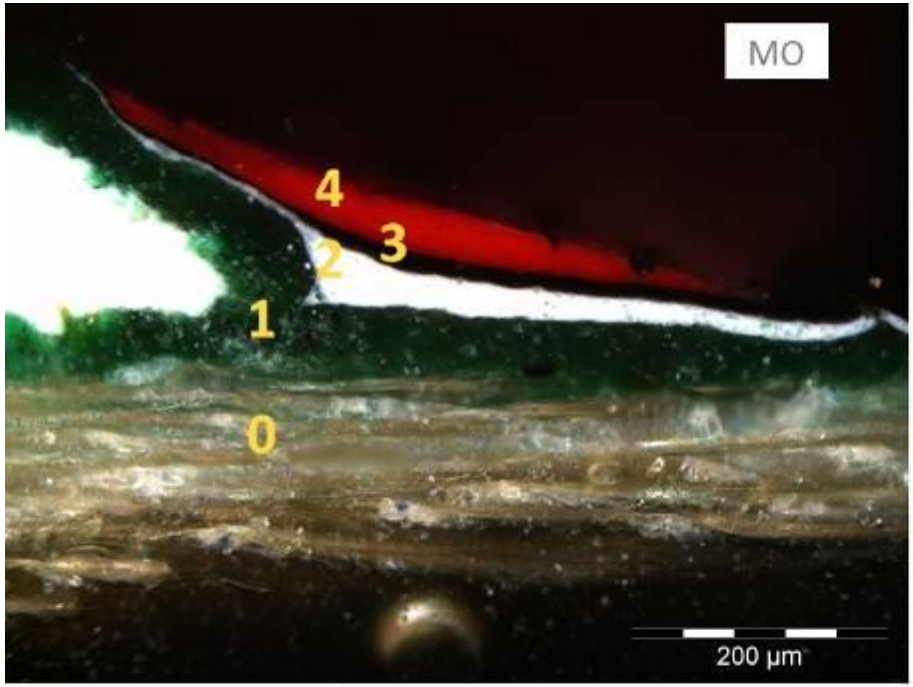
*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

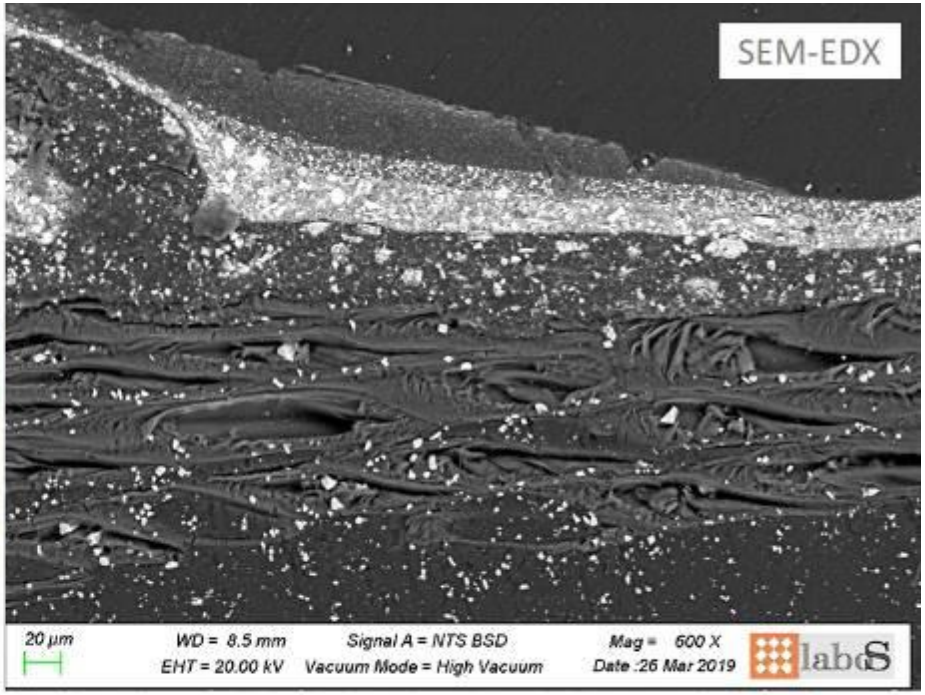
	Name of the sample	Original materials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
	Lichtenstein's Bench (I)										
1	**Black paint of seat bench**			ATR-FTIR	Silicates, calcite	ATR-FTIR Py-GC/MS	Alkyd			ATR-FTIR	oxalates
2	**Cross Section**										
3	**Red paint of seat bench**			ATR-FTIR	Kaolin, calcite	ATR-FTIR Py-GC/MS	Alkyd			ATR-FTIR	oxalates
4	**Yellow paint of seat bench**			ATR-FTIR	PY 151, silicates, calcite	ATR-FTIR Py-GC/MS	Alkyd				
5	**White paint of seat bench**			ATR-FTIR	Silicates	ATR-FTIR Py-GC/MS	Alkyd			ATR-FTIR	oxalates
6	**Green paint of the entire bench**			ATR-FTIR	Prussian blue (PB 27), calcite	ATR-FTIR	Styrene-Acrylic			Py-GC/MS	Alkyd

	Name of the sample	Original materials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification n methods	Results	Identification methods	Results
	Dalì's Bench (M)										
1	**Transparent paint of the seatback**			ATR-FTIR	silicates	ATR-FTIR	Perfluorinated polyurethane				
2	**White paint of the seatback**			ATR-FTIR	silicates					ATR-FTIR	Perfluorinated polyurethane

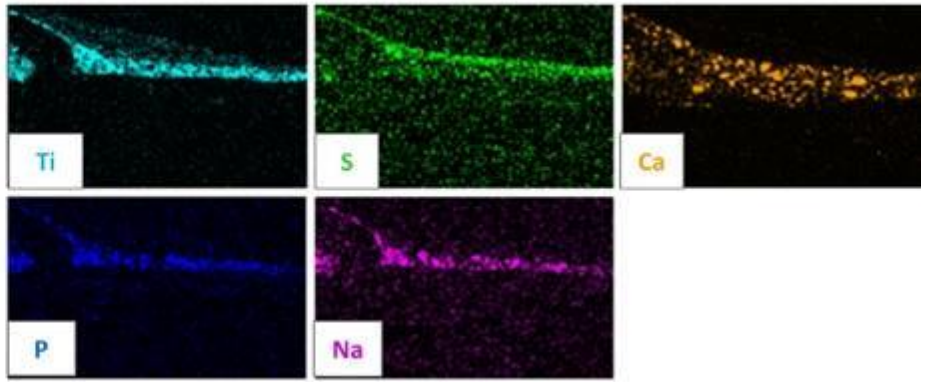
3	**White paint of the seatback**			ATR-FTIR	silicates					ATR-FTIR	Perfluorinated polyurethane

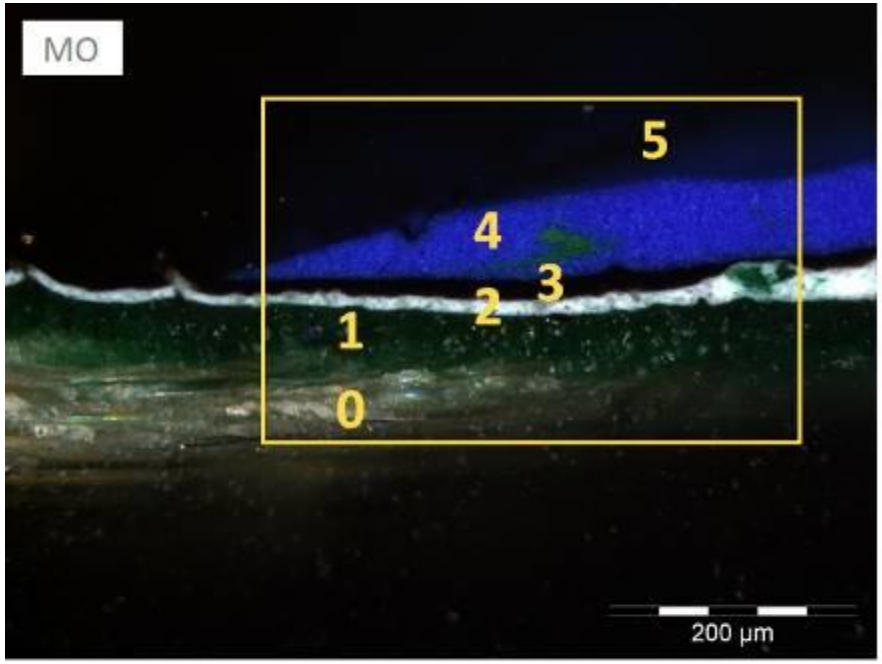
	Name of the sample	**Original materials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
	Klee's Bench (P)										
1	**Cross Section**										
2	**Protective varnish**			ATR-FTIR	Quartz	ATR-FTIR	Perfluorinated polyurethane				
3	**Red paint of seat bench**			ATR-FTIR	Silicates					ATR-FTIR	Perfluorinated polyurethane
4	**Black paint of seat bench profile**			ATR-FTIR	Silicates					ATR-FTIR	Perfluorinated polyurethane

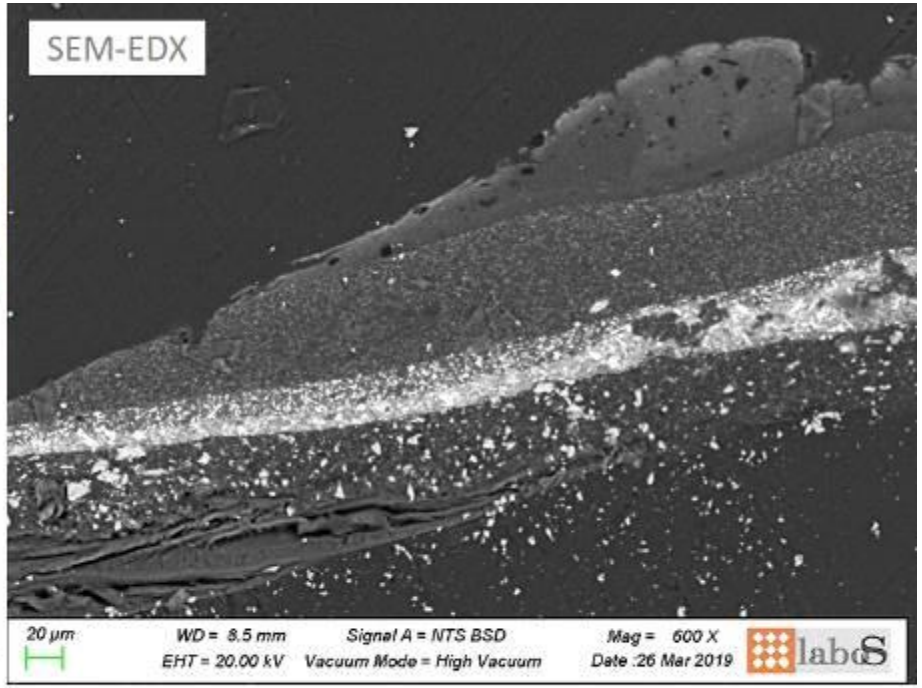




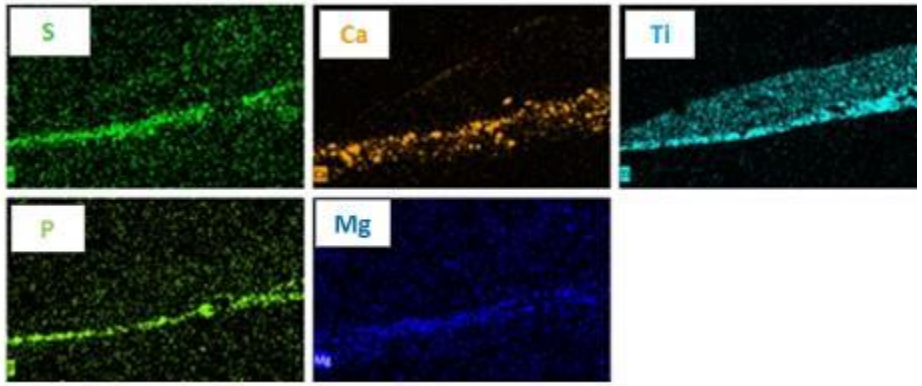
0 – support	wood
1 – green (bench)	**Ca, Si,** Fe, (Cl)
2 – white	**Ti, Ca**, Si, P, Al, Na, (Mg), (S)
3 – black	Ba, S, Ca, Mg, (Al)
4 – red	organic? Ti, Cl, (Si)

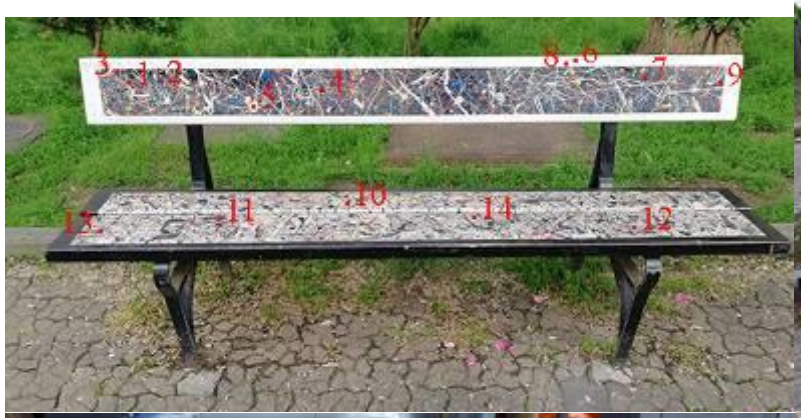






0 – support	wood
1 – green (bench)	**Si, Ca,** Fe, (Al), (Cl)
2 – white	**Ti, Ca**, Si, P, Al, Mg, Zn, (S)
3 – black	Ba, S, Si, Mg, (Ca)
4 – blue	organic? **Ti**
5 – deposit	Si, Al






ART

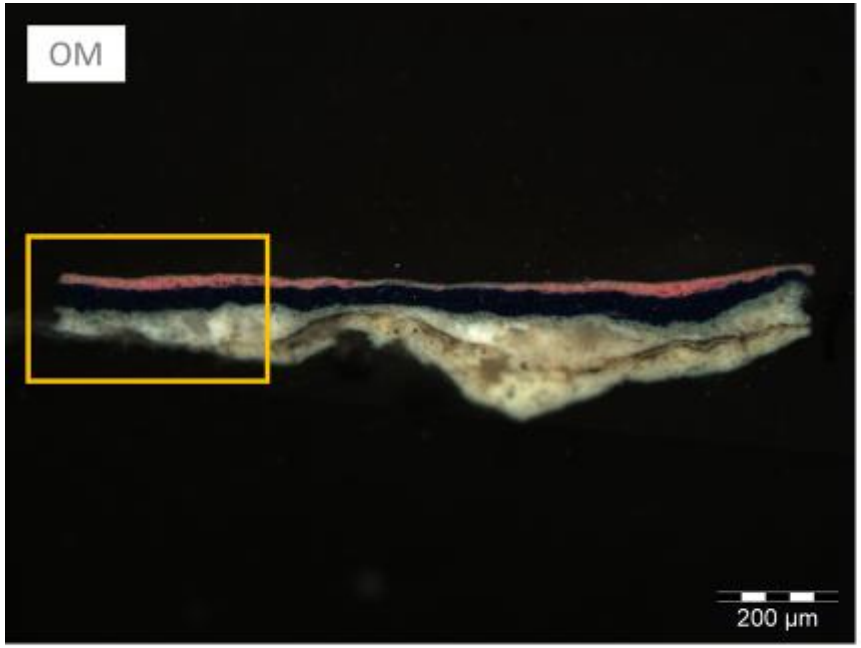

KLEE

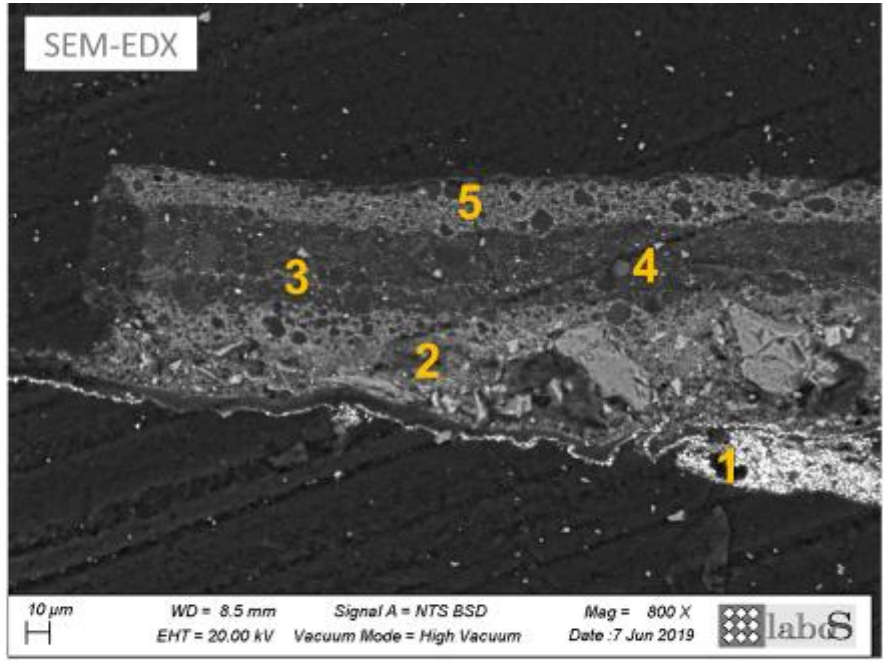
NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Painted Bench (Object 12)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**Piazza Galimberti**
OWNER / CUSTODIAN:	**Municipality of Turin**
ARTIST:	**Pao**
TITLE OF THE WORK:	**No title**
YEAR OF EXECUTION:	**2010**
MATERIALS:	**Spray painting on concrete**

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**White paint layer**	x		ATR-FTIR SEM-EDS	Calcite, talc, Ti white	ATR-FTIR Py-GC/MS	Styrene-modified alkyd			ATR-FTIR	oxalates
2	**Pink paint layer**	x		ATR-FTIR SEM-EDS	Calcite, silicates, Ti white	ATR-FTIR	Alkyd			ATR-FTIR	oxalates
3	**Blue paint layer**	x		ATR-FTIR SEM-EDS	dolomite, silicates	ATR-FTIR	Alkyd			ATR-FTIR	oxalates
4	**Light blue paint layer**	x		ATR-FTIR	Calcite, silicates, Ti white	ATR-FTIR	Alkyd			ATR-FTIR	oxalates

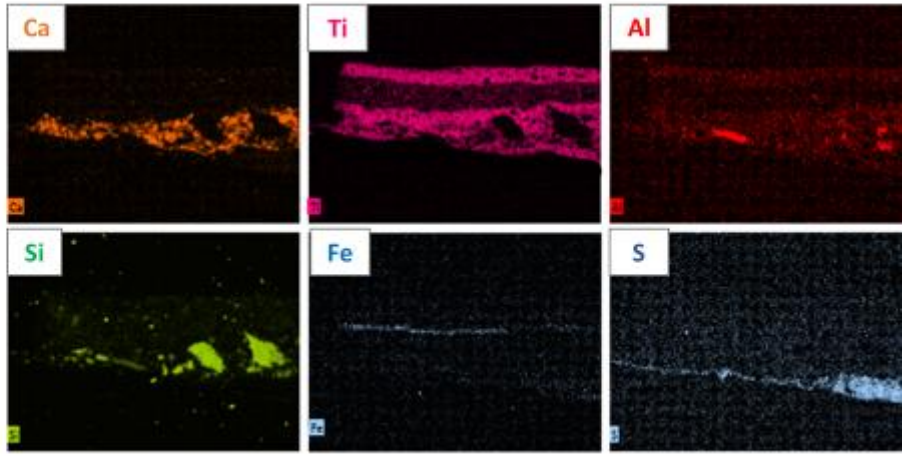
5	**Brown paint layer**	x		ATR-FTIR	Calcite, silicates	ATR-FTIR	Alkyd			ATR-FTIR	oxalates
6	**Green paint layer**	x		ATR-FTIR	Calcite, silicates	ATR-FTIR Py-GC/MS	Alkyd (main) Poly BMA (secondary)			ATR-FTIR	oxalates
7	**Yellow paint layer**	x		ATR-FTIR	PY74, calcite	ATR-FTIR	Possibly Alkyd				
8	**Black paint layer**	x		ATR-FTIR	Calcite, silicates	ATR-FTIR Py-GC/MS	Alkyd			ATR-FTIR	oxalates
9	**Cross Section**	x									

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**





1 – white	Barium sulfate
2 – white	**Si, Ca, Ti**
3 – black?	**Fe**, Ti, Si
4 – blue	Organic? Si, (Ti)
5 - pink	**Ti**, + (Al) silicate inclusions

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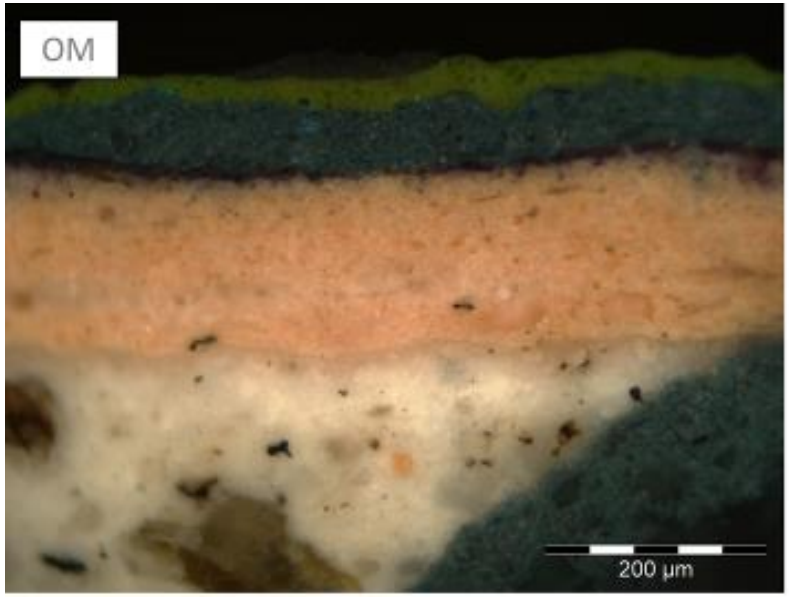
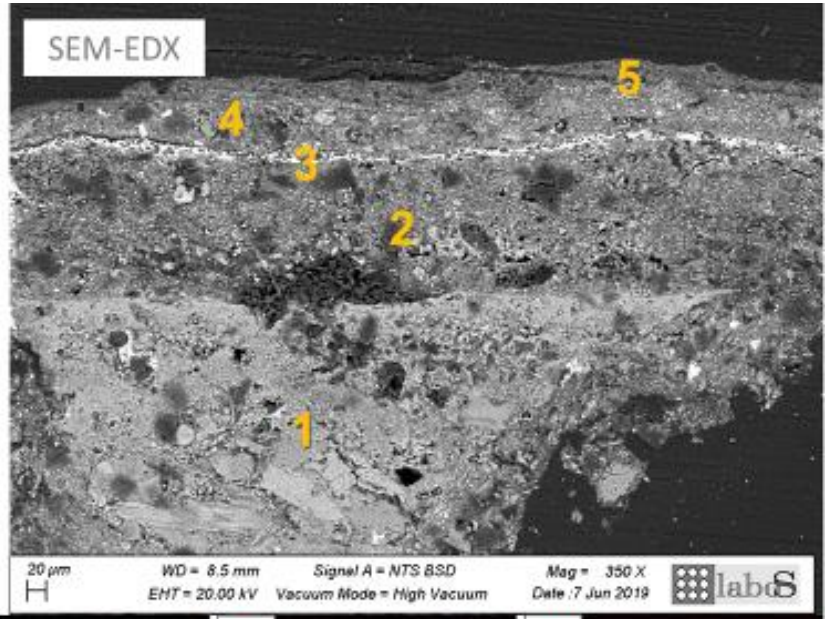
NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Mural (Object 13)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**Via Passo Buole**
OWNER / CUSTODIAN:	**Municipality of Turin**
ARTIST:	**Rojo Roma**
TITLE OF THE WORK:	**No title**
YEAR OF EXECUTION:	**2010**
MATERIALS:	**Mixed painting on cocrete**

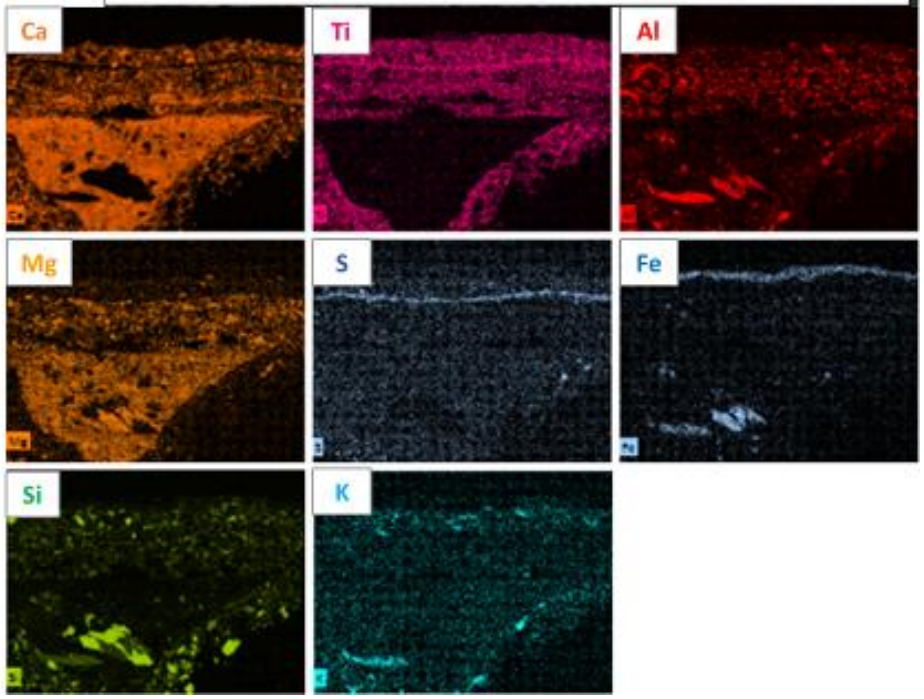
	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**Black paint layer**	x		ATR-FTIR	Silicates	ATR-FTIR Py-GC/MS	Styrene-modified Alkyd			ATR-FTIR	oxalates
2	**Green paint layer**	x		ATR-FTIR	Silicates	ATR-FTIR Py-GC/MS	Styrene-modified Alkyd			ATR-FTIR	oxalates
3	**Purple paint layer**	x		ATR-FTIR	Silicates	ATR-FTIR	Alkyd			ATR-FTIR	oxalates
4*	**Yellow paint layer**	x		ATR-FTIR SEM-EDS	PY151 Silicates	ATR-FTIR	Alkyd			ATR-FTIR	oxalates
*	**Cross Section**	x									

5	**Grey paint layer**	x		ATR-FTIR	Silicates	ATR-FTIR	Alkyd				
6	**Bordeaux paint layer**	x		ATR-FTIR	Silicates	ATR-FTIR Py-GC/MS	Styrene-modified Alkyd				
7	**Light blue paint layer**	x		ATR-FTIR	Calcite, silicates, Ti white	ATR-FTIR	Alkyd				
8	**Turquoise green paint layer**	x		ATR-FTIR	Silicates, Ti white	ATR-FTIR	Alkyd				
9	**Cross Section**	x									

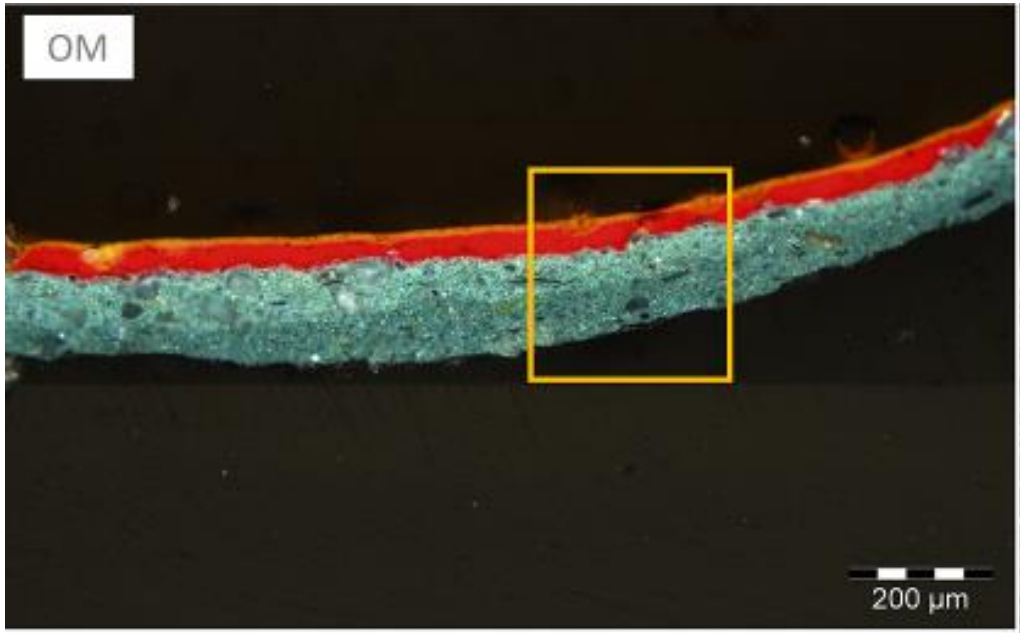
*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

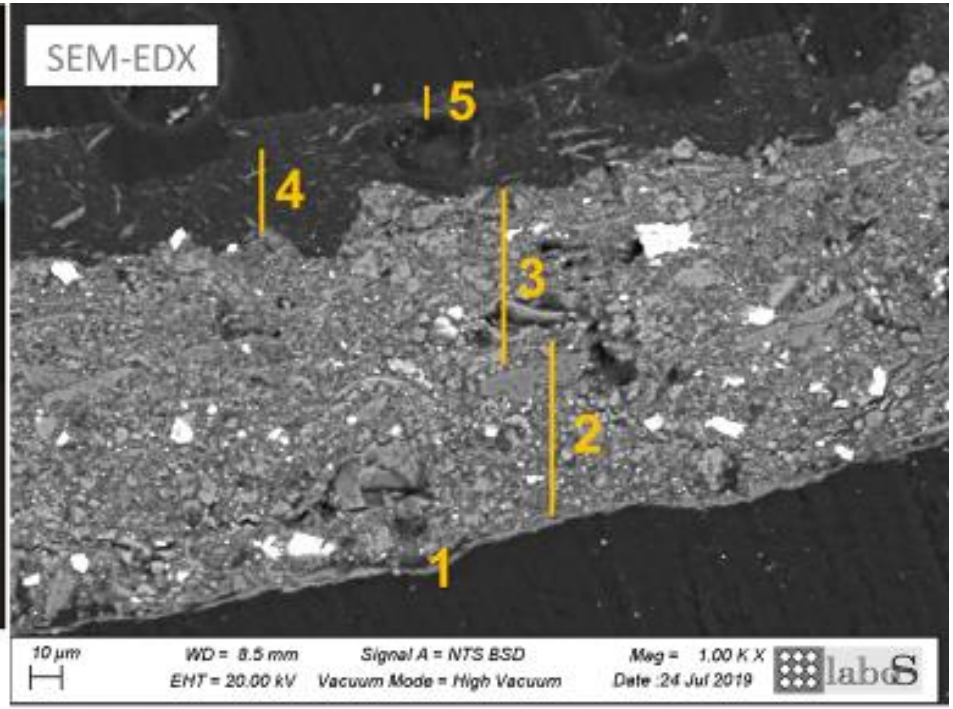




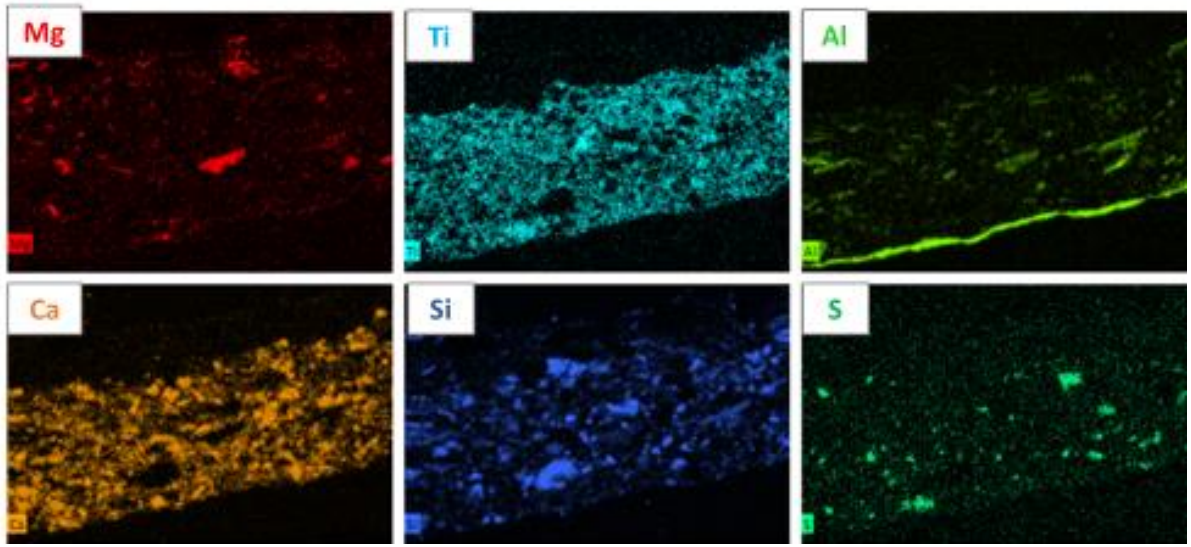


1 – white	**Ca, Si, Mg,** Al, (Fe), (K) + some $BaSO_4$ grains
2 – pink	**Ca, Ti, Mg**, Si, Al, (K), (Na)
3 – black	**Ba,** S, Pb, (Ca), (Si)
4 – dark green	**Ca, Ti, Si,** Al, K, S
5 – light green	**Fe, Ti, Si**





1 – silver	**Al**
2 – dark teal	**Ca, Ti, Si**, Al, Mg, K + $BaSO_4$ grains, (Sr)
3 – light teal	
4 – red	Organic?
5 - yellow	**Si, Mg,** (Ca), (Fe)



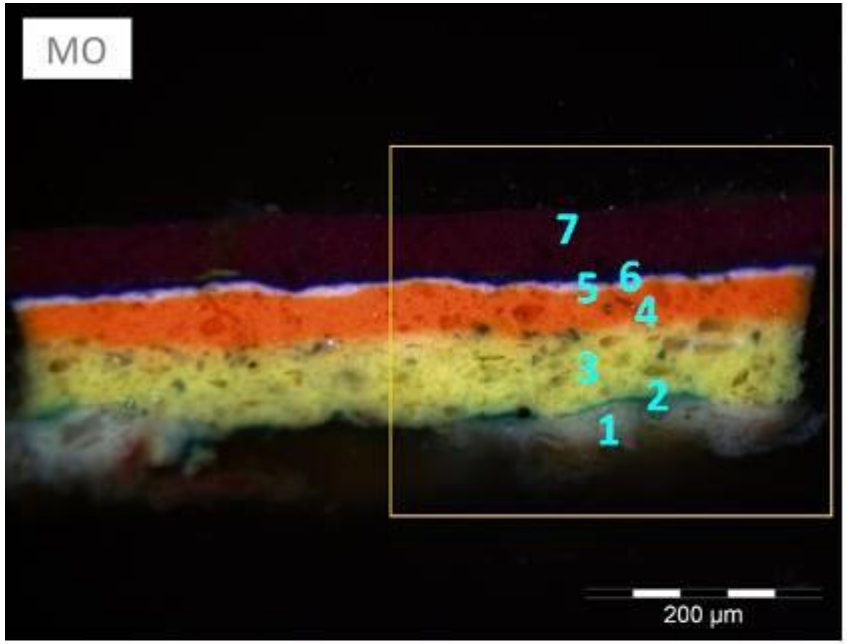

3.
.4
.5
6.
.7
.9
8.
2.
.1

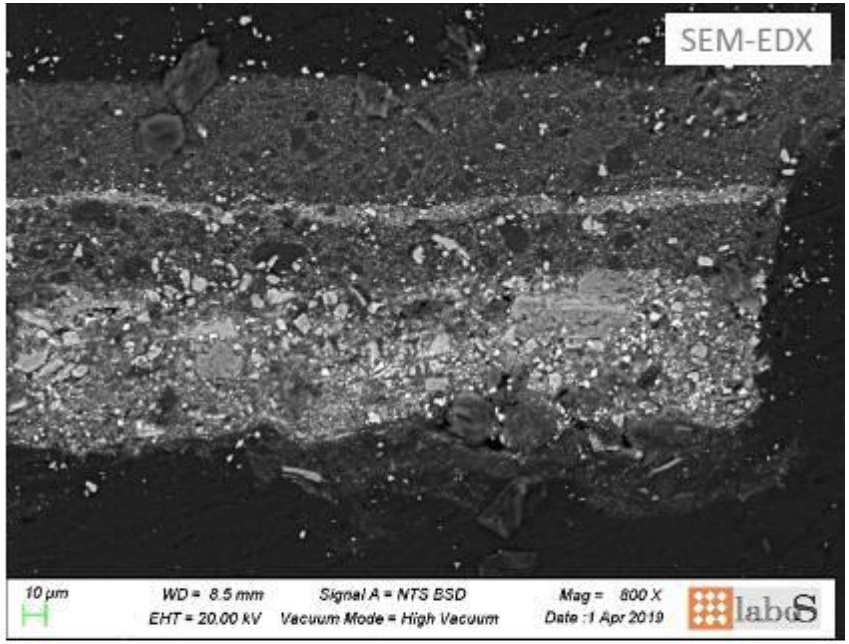
NUMBER OF PARTNER:	**UNITO - CCR**
TYPE OF WORK:	**Mural (Object 14)**
COUNTRY:	**Italy**
CITY:	**Turin**
ADDRESS:	**C.so Bramante**
OWNER / CUSTODIAN:	**Municipality of Turin**
ARTIST:	**VARIOUS**
TITLE OF THE WORK:	**No title**
YEAR OF EXECUTION:	**2010**
MATERIALS:	**Mixed paint on concrete**

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**Green paint layer background**	x		ATR-FTIR	Calcite, silicates	ATR-FTIR Py-GC/MS	Styrene-Acrylic, Alkyd				
2	**Red paint layer**	x		ATR-FTIR	PY74	ATR-FTIR	Alkyd				
3	**Pink paint layer**	x		ATR-FTIR	Silicates, Ti white	ATR-FTIR Py-GC/MS	Styrene-Acrylic, Alkyd			ATR-FTIR	oxalates

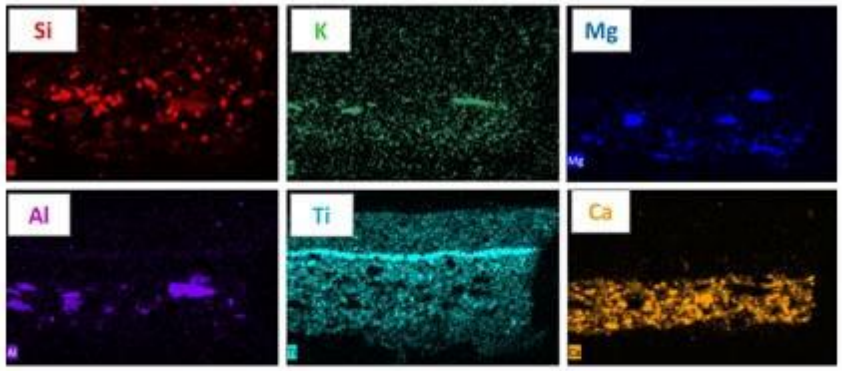
4	**Pale yellow paint layer**	x		ATR-FTIR	PY74, Ti white, silicates	ATR-FTIR Py-GC/MS	Styrene-Acrylic, Alkyd				
5	**Dark Yellow paint layer**	x		ATR-FTIR	Calcite	ATR-FTIR	Styrene-Acrylic				
6	**Dark blue paint layer**	x		ATR-FTIR	Ti white	ATR-FTIR	Alkyd				
7	**Light blue paint layer**	x		ATR-FTIR	Silicates, calcite	ATR-FTIR	Alkyd				
8	**Pale light blue paint layer**	x		ATR-FTIR	Silicates, calcite	ATR-FTIR	Alkyd			ATR-FTIR	oxalates
9	**White paint layer**	x		ATR-FTIR	Talc, dolomite	ATR-FTIR	Undefined				
10	**Purple paint layer**	x		ATR-FTIR	PR84	ATR-FTIR	Alkyd				
10b	**Cross section**	x		See pictures below							
11	**Cross Section**	x									
12	**Support (probably not the concrete, but the plaster prepration)**	x						XRD	Quartz, calcite, Albite, Rutile, Barite		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**





1 – white	Si, Ca, Ti, Mg, (Fe), (Na), (Al), (S), (Cl), (K)
2 – green	?
3 – yellow	**Ti**, Ca, Si, Al, Mg, K, (Fe), *(Bi)* + carbonate aggregates + Ca,Al-silicate aggregates
4 – orange	**Si**, **Ti**, (Ca) + silicate aggregates
5 – white **6 – blue**	**Ti**, Si, Al + $BaSO_4$ aggregates
7 – purple	**Ti**, Si, (Al), (S), (Cl) + silicate aggregates




4..5
2.3.
6..7
.10
.11/12
.1
9.
.8

P3 Cesmar7, P4 An.t.a.res srl Unipersonale

NUMBER OF PARTNER:	P3 Cesmar7, P4 An.t.a.res srl Unipersonale
TYPE OF WORK:	Mural painting
COUNTRY:	Italy
CITY:	Reggio Emilia
ADDRESS:	Circolo ARCI PIGAL (Community Center), Via Petrella
OWNER / CUSTODIAN:	Municipality of Reggio Emilia
ARTIST:	Göla
TITLE OF THE WORK:	Two dragons carrying an egg (new creature)
YEAR OF EXECUTION:	2011
MATERIALS:	Housepaint and spray

	Name of the sample	Original materials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	GP1	X		µ- Raman on the cross-section sample	Bluish paint layer (Hostopen Violet) is on a violet layer based on phtalocyanine pigment	-	-	-		-	

2	GP2	X				FTIR-ATR	Acrylic polymer based coating			Imaging analyses: digital photography with raking light and Ultraviolet fluorescence photography	State of conservation and fluorescence response of the coating	
3	GP3	X					Acrylic + alkyd-containing resin			Stereomicroscopy on sample fragments		
4	GP4	X			Calcite and silicates		Acrylic resin + ?					
5	GP5		X?							Optical microscopy and cultural techniques	Co- dominant organism	CFU %
											Aureobasidium sp.	17
											Penicillium sp.	19
											Dematiaceous moulds (Cladosporium/Alternaria)	19
											Rhodotorula (red yeast)	17
											Epicoccum	5

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

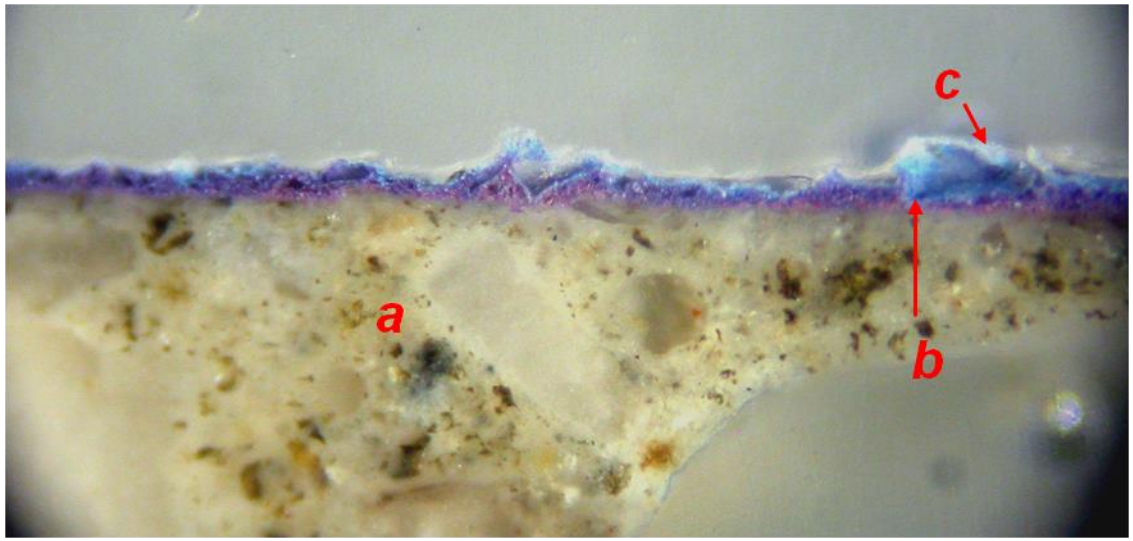


Fig. 1 "Two dragons carrying an egg (new creature)" – sample GP1 – cross section – reflected Visible light – magnification 150 x

GP1 sample was collected from a blue area painted by brush (**fig.2**), that hue was originally deeper.
The study of the GP1 sample has shown the following structure and composition:

- *a)* Concrete support > 500 µm thick;
- *b)* Violet paint layer based on phtalocyanine pigment, average thickness of 20 µm;
- *c)* Bluish paint layer composed of Hostopen Violet, average thickness of 20 µm;
- *d)* Whitish thin layer (coating) is hypothesized, it is too thin to be measured but its application has been reported by Pigal.

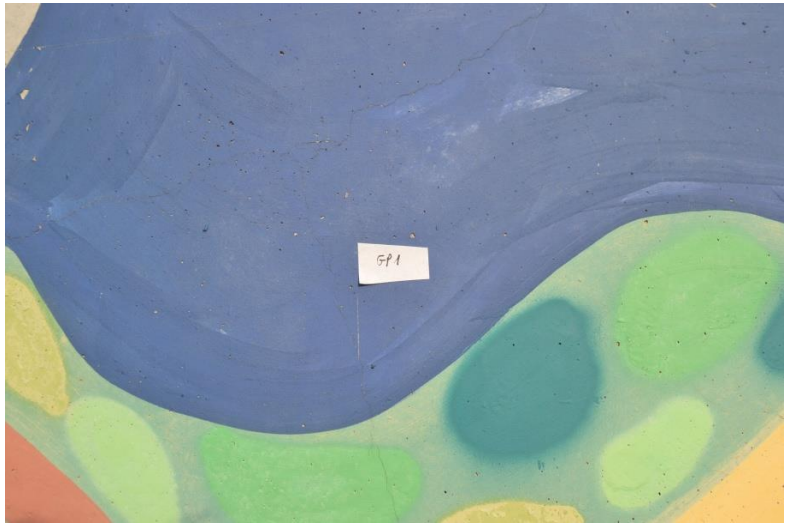
GP2 was collected from the coating applied by brush/roller on unpainted/painted surface (i.e. *d* layer of the GP1 sample), this whitish and fragile coating is flaking off (**fig.3**). FTIR-ATR spectrum has shown the characteristic absorption of an acrylic emulsion (probably p(*n*BA-MMA)to be confirmed by Py-GC-MS) with likely chalk (**fig.4**) and imaging analyses have allowed to highlight its presence and the bad state of conservation (flaking, cracking) (**fig. 5-6**).

GP3 was collected from a fragile and flaked pale yellow (yellow-orange former) spray paint layer; it is detaching, together with the coating GP2 (**fig. 7**), from the pink paint layer applied below by brush (**fig. 9**). FTIR-ATR spectra have shown pattern of an acrylic resin for the yellow layer and alkyd-containing resin for the pink layer (**fig.9-10**). This sample has been addressed to Py-GC-MS.

GP4 was collected from a drop of silver paint (gold former) on a violet area paint applied by brush made off an acrylic resin, Calcite and silicates. The composition of Silver paint is not clear.

GP5 was taken several times during the 2019th year from a thin dark grey and compact patina that is spread on not pigmented areas of concrete support following a sort of grid and it is associated with cracks (**fig.2**). Analysis has shown a significant presence of filamentous fungi and yeast, being the black mould *Aureobasidium* the most dominant organism (**fig. 11-14**)
The presence of fungal species indicates the availability of organic substances on the surface of the cement wall.
It is not clear if the black patina has only a biotic origin.
An investigation on concrete preparation techniques has highlighted the use of mineral oil for the detachment of concrete from molds. This procedure leaves in some surface areas dark patinas that could get harder and darker with aging. Probably this organic patina could be subsequently colonised by microorganisms, which enhance the surfaces darkening. In particular some fungal species such as *Aureobasidium*, *Epicoccum*, *Penicillium* and yeast such as *Rhodotorula* are known to effectively degrade mineral or vegetable oil. [1,2,3,4]
The presence of a biofilm on the surface might contribute to the degradation of the substrate by progressive darkening, water accumulation (and subsequent frost weathering), acidification and leaching.

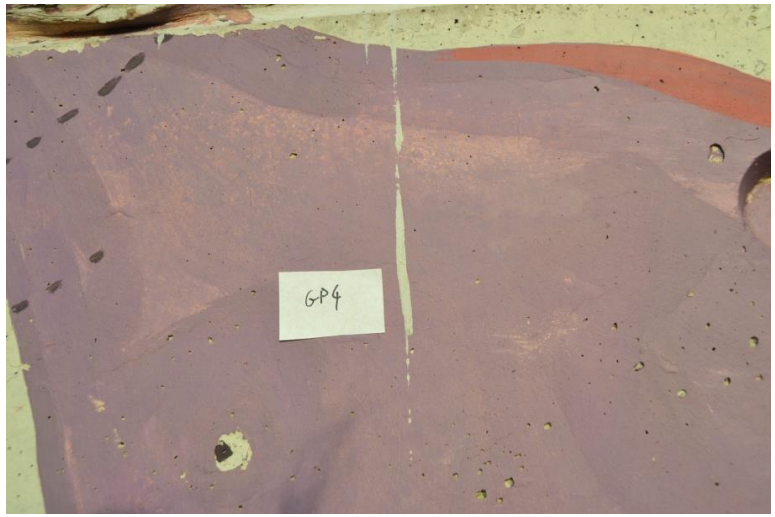
[1] Van Nieuwenhuijzen EJ, Sailer MF, van den Heuvel ER, Rensink S, Adan OCG, Samson RA. (2019) Vegetable oils as carbon and energy source for Aureobasidium melanogenum in batch cultivation. *Microbiology Open*.; 8(6): e00764. doi:10.1002/mbo3.764
[2]Yemashova, Natalia & Murygina, Valentina & Zhukov, Dmitry & Zakharyantz, Arpenik & Gladchenko, Marina & Appanna, Vasu & Kalyuzhnyi, Sergey. (2007) Biodeterioration of Crude Oil and Oil Derived Products: A Review. *Reviews in Environmental Science and Biotechnology*. 6. 315-337. 10.1007/s11157-006-9118-8.
[3] Gupta Aman, Gupta Deepak and Vaidya Vinit (2015) Epicoccum nigrum link. As a potential source of Mycoremediation against oil spill, *Int. J. of Life Sciences*, Special Issue, A5: 32-36
[4] Das N, Chandran P. (2011) Microbial degradation of petroleum hydrocarbon contaminants: an overview. *Biotechnol Res Int*. doi:10.4061/2011/941810



“ Two dragons carrying an egg (new creature)” – sample GP1 – before sampling

“ Two dragons carrying an egg (new creature)” – sample GP2

“ Two dragons carrying an egg (new creature)” – sample GP3



“ Two dragons carrying an egg (new creature)” – sample GP4 – before sampling

" Two dragons carrying an egg (new creature)" – sample GP5 – before sampling

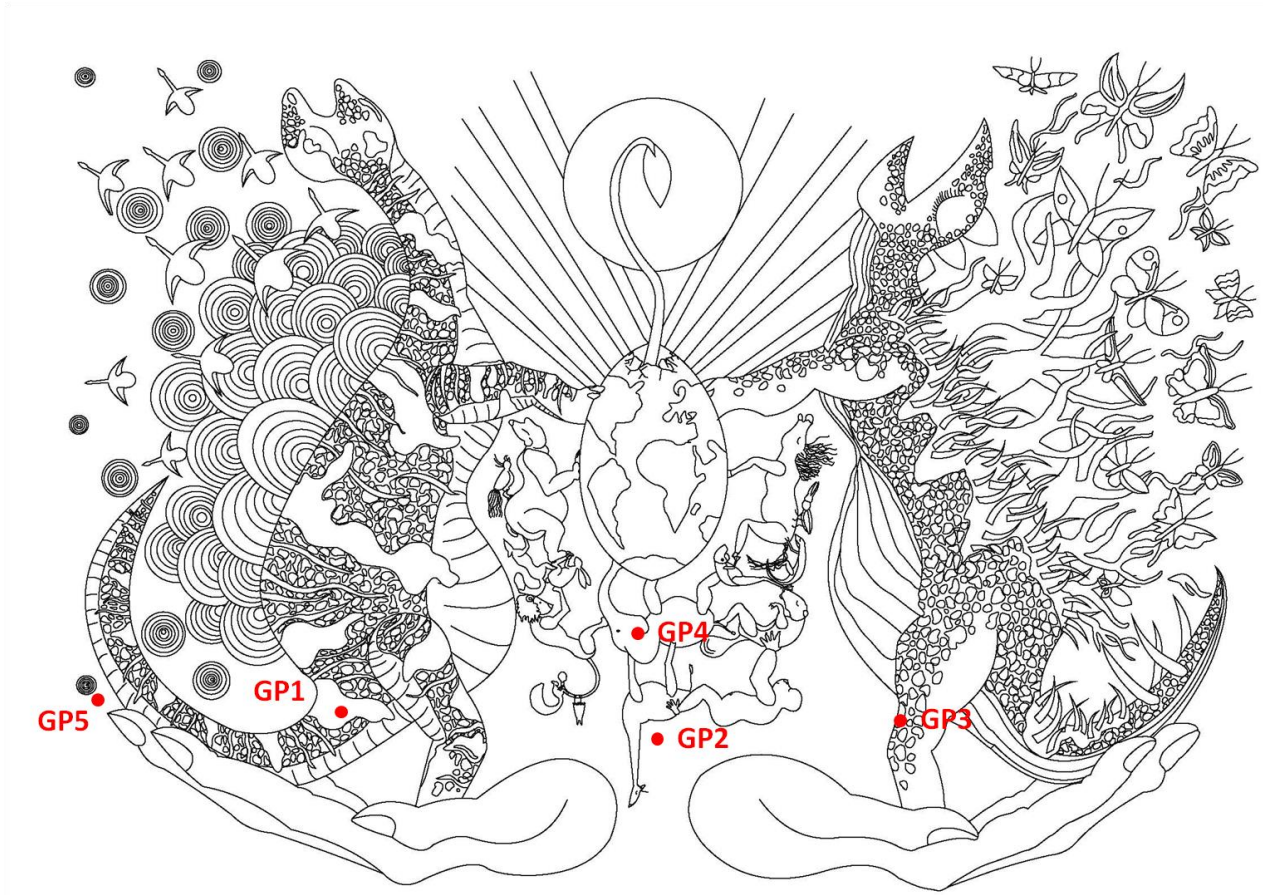


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Fig. 2 " Two dragons carrying an egg (new creature)" – sampling location

Fig. 3 " Two dragons carrying an egg (new creature)" –GP2 – SM – magnification 20 x

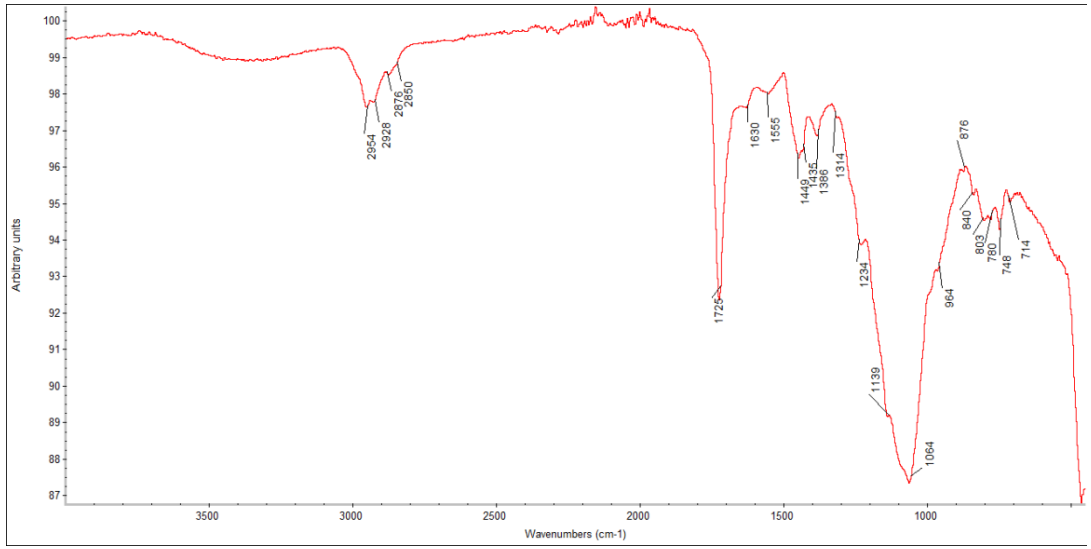


Fig. 4 "Two dragons carrying an egg (new creature)" – sample GP2 – FTIR-ATR spectrum

Fig. 5 "Two dragons carrying an egg (new creature)" – particular – digital photo under raking light

Fig. 6 "Two dragons carrying an egg (new creature)" – particular – ultraviolet fluorescence photo

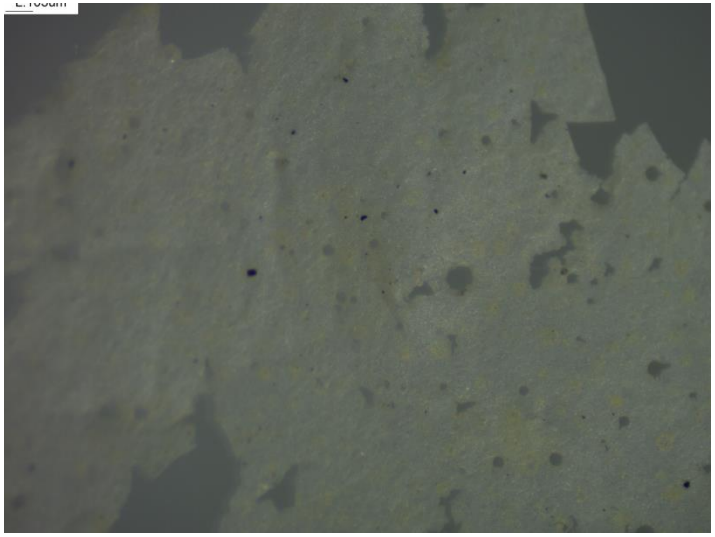


Fig. 7 " Two dragons carrying an egg (new creature)" – sample GP2 – SM – magnification 40 x

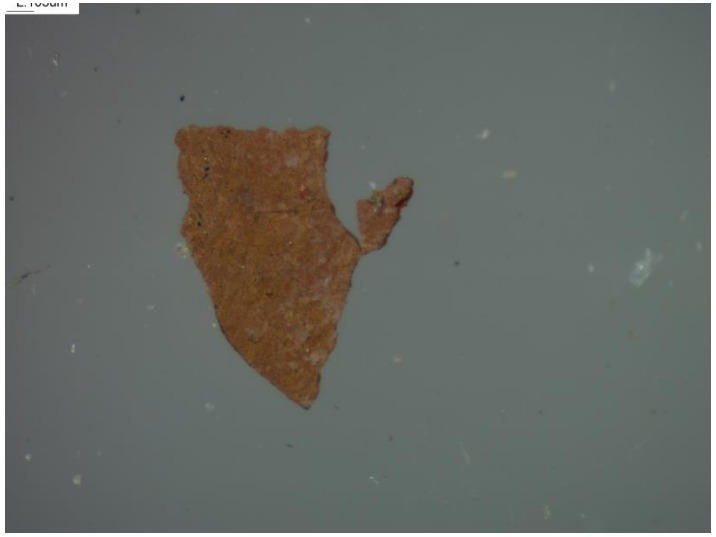


Fig. 8 " Two dragons carrying an egg (new creature)" – sample GP2 – SM – magnification 40 x

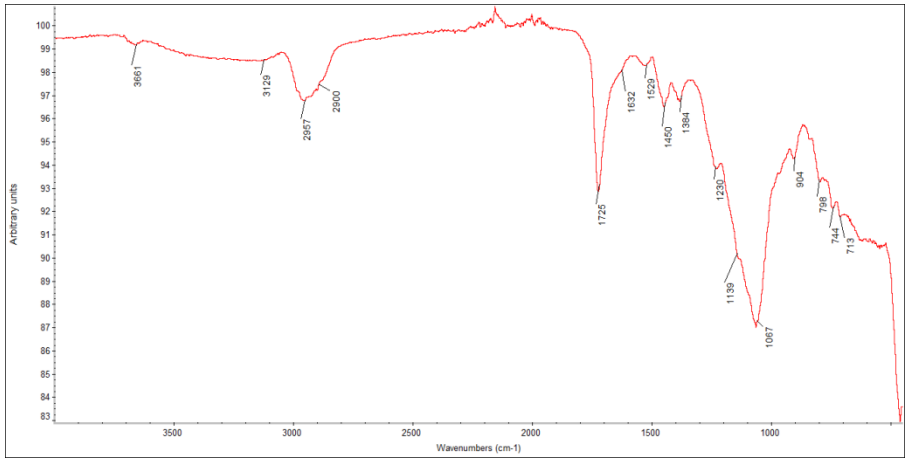


Fig. 9 "Two dragons carrying an egg (new creature)" – sample GP3 – FTIR-ATR spectrum

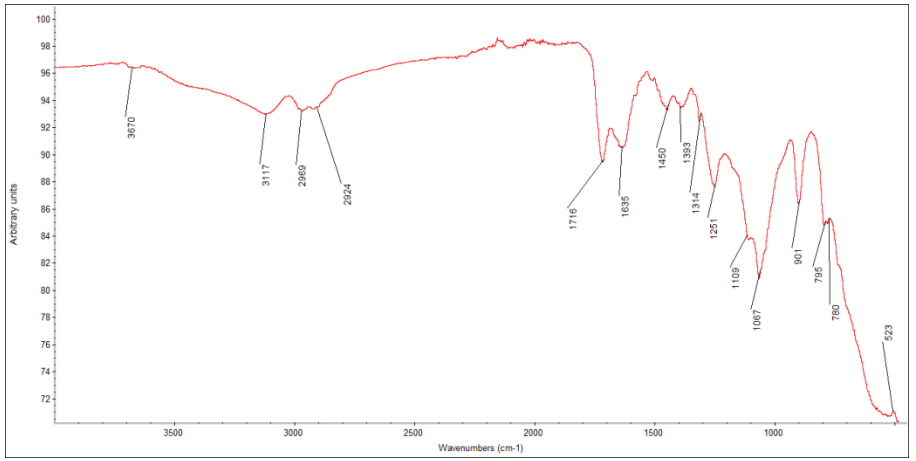


Fig. 10 "Two dragons carrying an egg (new creature)" – sample GP3 – FTIR-ATR spectrum

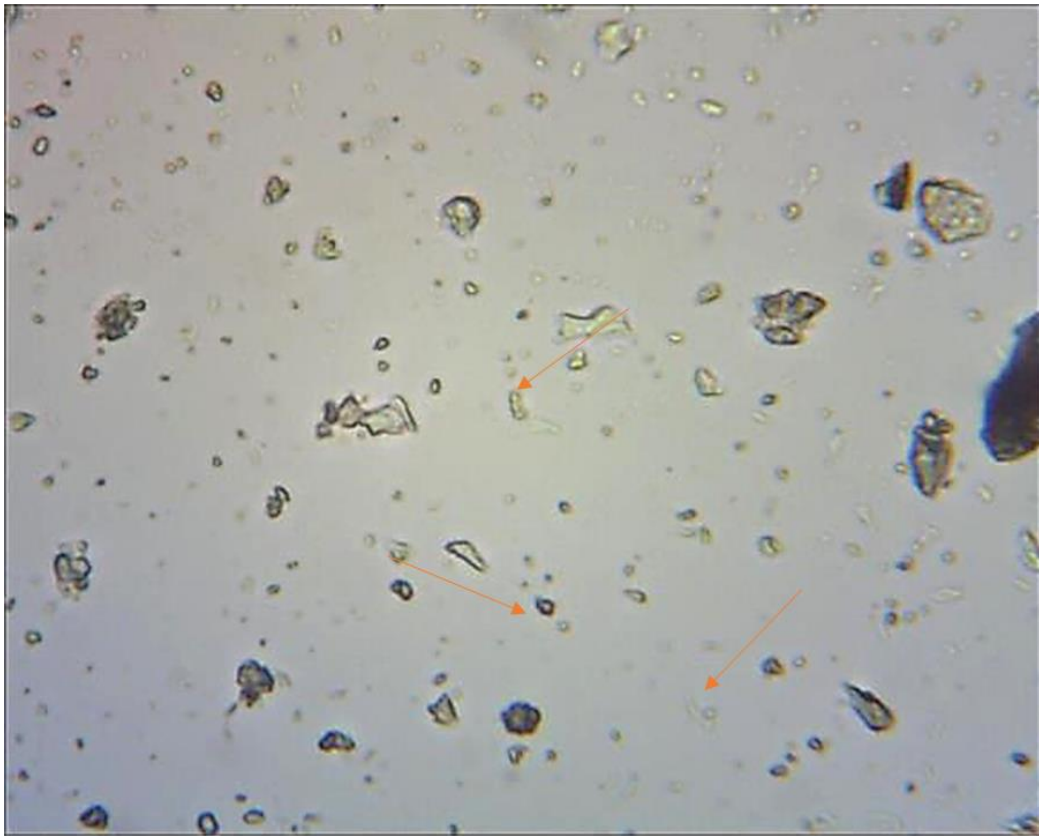


Fig.11 "Two dragons carrying an egg (new creature)" – sample GP5 – transmitted Visible light – magnification 400x : erratic and motile spherical cells, sometimes present in 2-3 cells chain

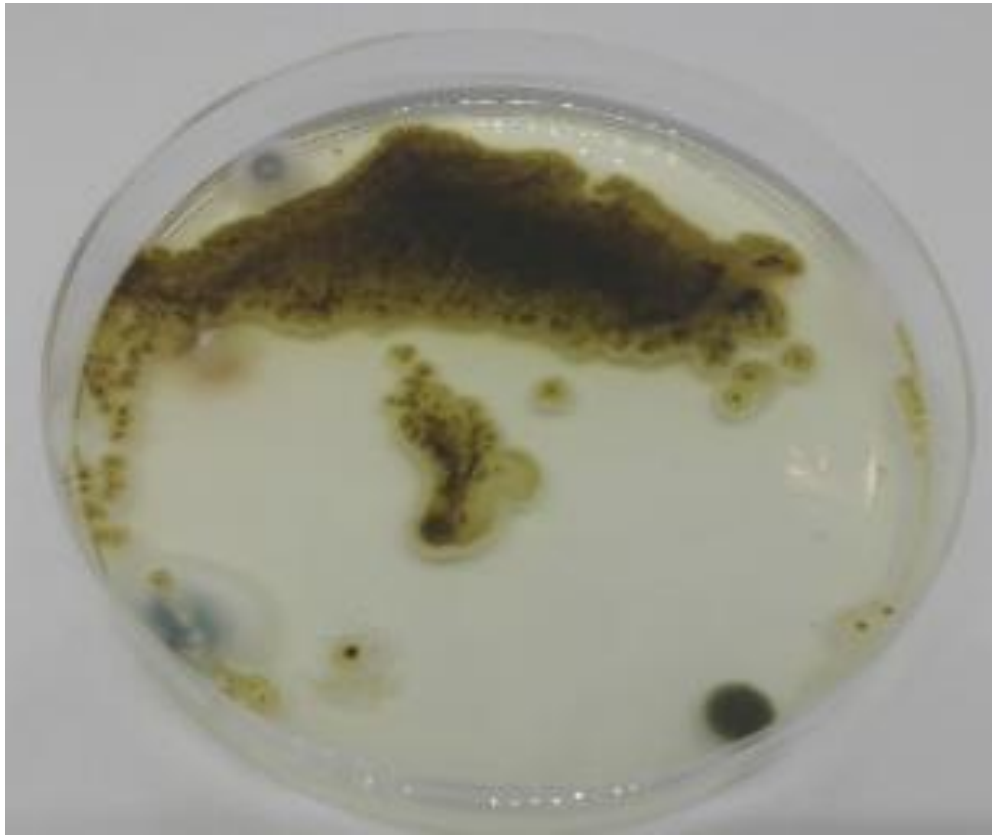


Fig.12: *Aureobasidium* colonies on agar plate form samples collected in July 2019

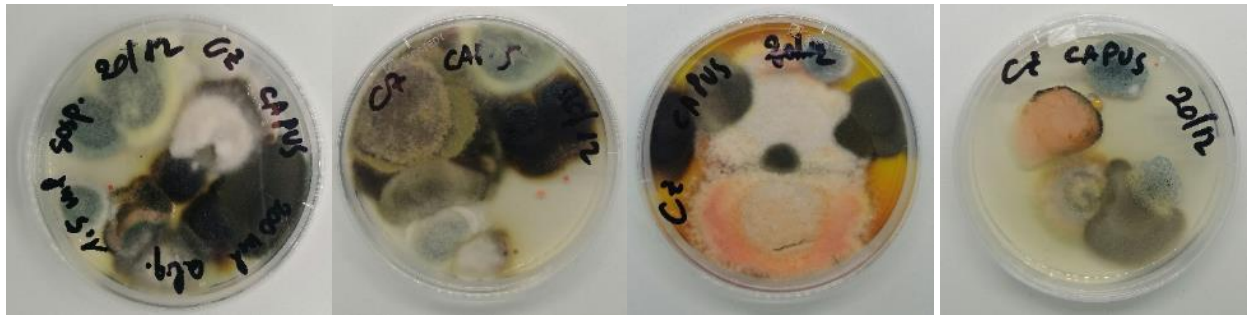


Fig. 13. Total CFU obtained on agar plates form samples collected in December 2019

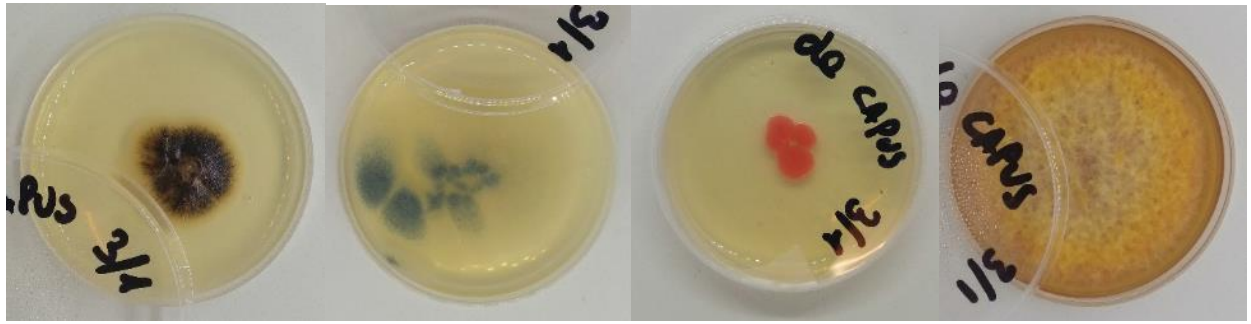


Fig. 14. Co-dominant fungal species isolates (*Aureobasidium, Penicillium, Rhodotorula, Epicoccum*) from samples collected in December 2019

NUMBER OF PARTNER:	P3 Cesmar7, P4 An.t.a.res srl Unipersonale
TYPE OF WORK:	Mural painting
COUNTRY:	Italy
CITY:	Reggio Emilia
ADDRESS:	Via Selo
OWNER / CUSTODIAN:	Cooperativa Case Operaie di Mancasale e Coviolo
ARTIST:	KENOR (Proyecto Ritual)
TITLE OF THE WORK:	Big Sacral Bird
YEAR OF EXECUTION:	2010
MATERIALS:	housepaint acrylic and Montana spray

	Name of the sample	Original materials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	K1	X				FTIR-ATR	Alkyd resin	-		Stereomicroscopy on sample fragments	Stratigraphy: a.Ground layer b.Yellowish ground layer c.White prime coating d. Greenish-yellowish paint layer e. light blue paint layer

2	K2	X		μ- Raman on the cross-section sample	Rutile is ubiquitous and mainly present in the patina. The orange color is due to PO34 – Diazopyrazolone and PY74 acetoacetic arylide		Alkyd resin is in the patina layer				Stratigraphy: a.Yellowish ground layer b.Pale orange paint layer c.Pale yellow thin layer (patina)
3	K3	X									Stratigraphy: a.Yellowish ground layer; b.Orange paint layer; c.Pink thin layer (patina)
4	K4 (c)	X		Raman Spectroscopy in situ	Acetoacetic arylide based pigment (PY74) plus probably goethite		Alkyd resin modified with nitrocellulose				Stratigraphy: a.Yellowish ground layer; b.Orange paint layer with a glossy whitish superficial patina
5	1 (005)	X			Rutile, Phtalocyanine or Hostasol green?						
6	2 (020)	X			Rutile, plus?						
7	11	X			Rutile, Hostopen Violet						
8	12	X			Rutile, Polycyclic pigment, pthalocyanine						
9	a	X			Rutile, PY74 acetoacetic arylide						
10	b	X									

11	014	X			Carbazole dioxazine violet PV23?+Pthalocyanine? Or Hostopen Violet?						
12	d	X			probably PY74 acetoacetic arylide or Maybe a disazopigment, pyrazolone (PO?)						
13	e	X			Rutile, Disazopigment, Pyrazolone PO34						
14	f (023)	X			Monoazopigment, Naphthol AS PR112						
15	t	X			Rutile, Monoazopigment, acetoacetic arylide PY 74						
16	020	X		Raman Spectroscopy in situ	phtalocyanyne						
17	s	X		Raman Spectroscopy in situ	Rutile, Monoazopigment, acetoacetic arylide PY 74						
18	p[1]	X		Raman Spectroscopy in situ	Carbazole dioxazine violet PV23? Calcite?						
19	n	X			Rutile, Monoazopigment, acetoacetic arylide family?						
20	p	X			Rutile, Monoazopigment, acetoacetic arylide PY 74						
21	l	X									
22	v (022)	X			Rutile, Disazopigment, Diarylide PY83						
23	w	X			Rutile, Monoazopigment, acetoacetic arylide PY 74						

24	r	X			Monoazopigment (probably PR48:1 form)						
25	h	X			Rutile, Monoazopigment, acetoacetic arylide family?						
26	013	X			Polycylic pigment, pthalocyanine (PB15:3?)						

*** mortars, stone, metal ect. ** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

K1 sample was collected from a light blue area (spray paint) (**fig.1-5**) affected by cracking and fading, it was originally darker.
The study of the K1 sample has shown the following structure and composition:

e) Traces of the plaster ground layer;
f) Yellowish ground layer, regular feature and thickness;
g) White paint layer (prime coating?);
h) Greenish-yellowish paint layer;
i) Very thick and porous light blue paint layer containing alkyd resin (**fig. 4**)

Fig. 1 " Big Sacral Bird " – sample K1 – before sampling

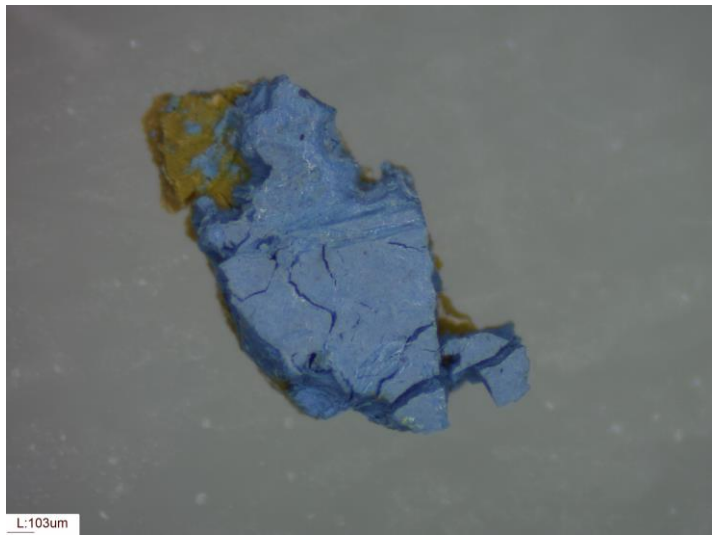


Fig. 2 " Big Sacral Bird " – sample K1 – SM – magnification 40 x

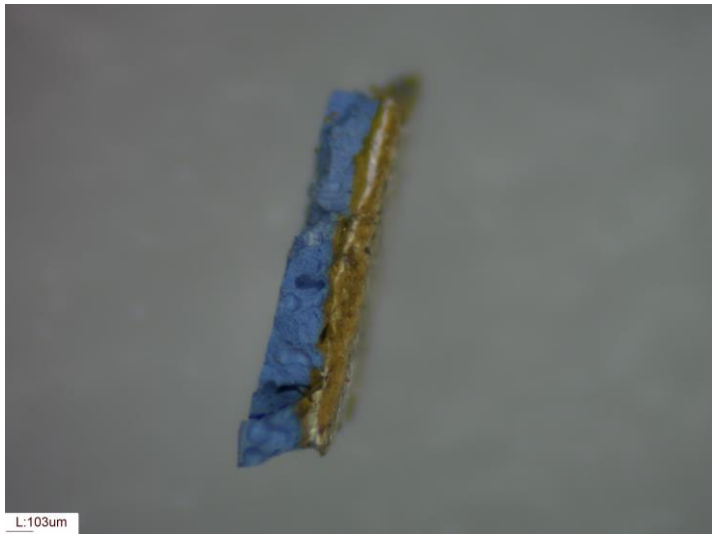


Fig. 3 " Big Sacral Bird " – sample K1 – SM – magnification 40 x

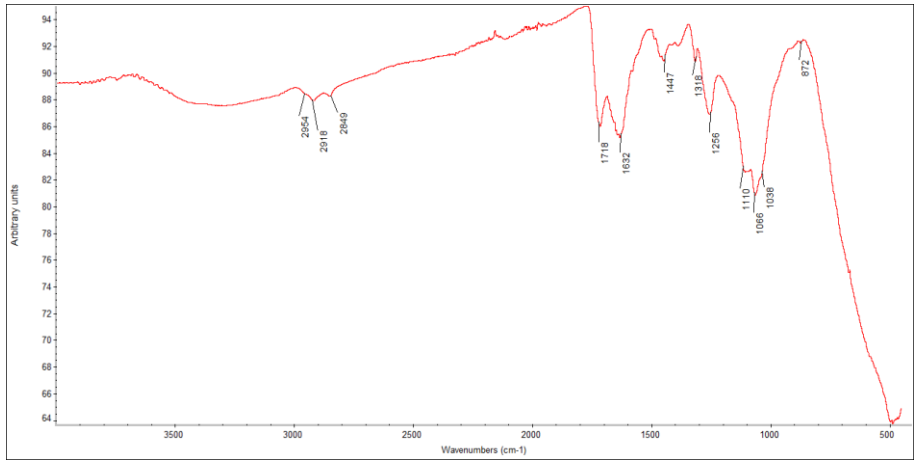
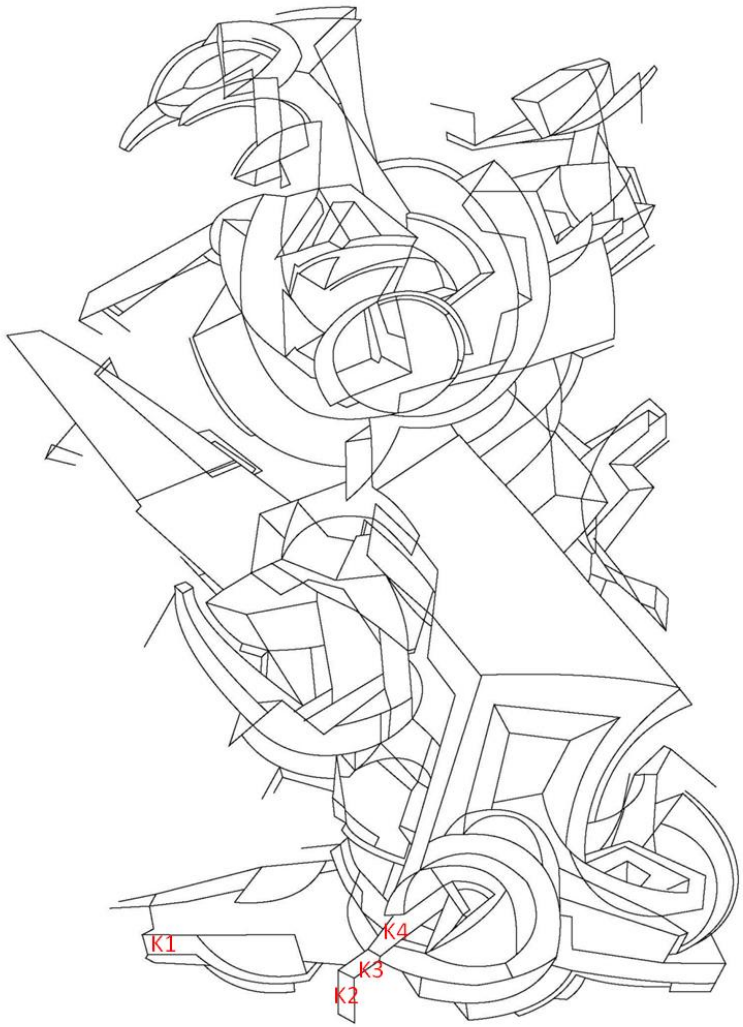


Fig. 4 " Big Sacral Bird " – sample K1 – FTIR-ATR spectrum of the *e* paint layer



Sampling map

K1 Blu > light blu
K2 Light orange > pale yellow
K3 Orange > pink
K4 Orange > dark orange

Fig. 5 " Big Sacral Bird "– sampling location

K2 sample was collected along a crack of a pale yellow area (spray paint) (**fig.4,6-8**) that was originally light orange.
The study of the K2 sample has shown the following structure and composition:

a) Yellowish ground layer, regular feature and thickness (about 120 µm), containing Calcite, Goethite and Rutile.
b) Pale orange paint layer containing red pigment PO34 Diazopyrazolone and yellow pigment PY74 acetoacetic arylide with Rutile. Regular feature, average thickness of 30 µm; this paint layer has been addressed to Py-GC-MS.
c) Pale yellow thin layer (patina) mainly composed of Rutile and alkyd resin probably styrene-modified for the peak of aromatic C-H stretching (**fig. 9**).

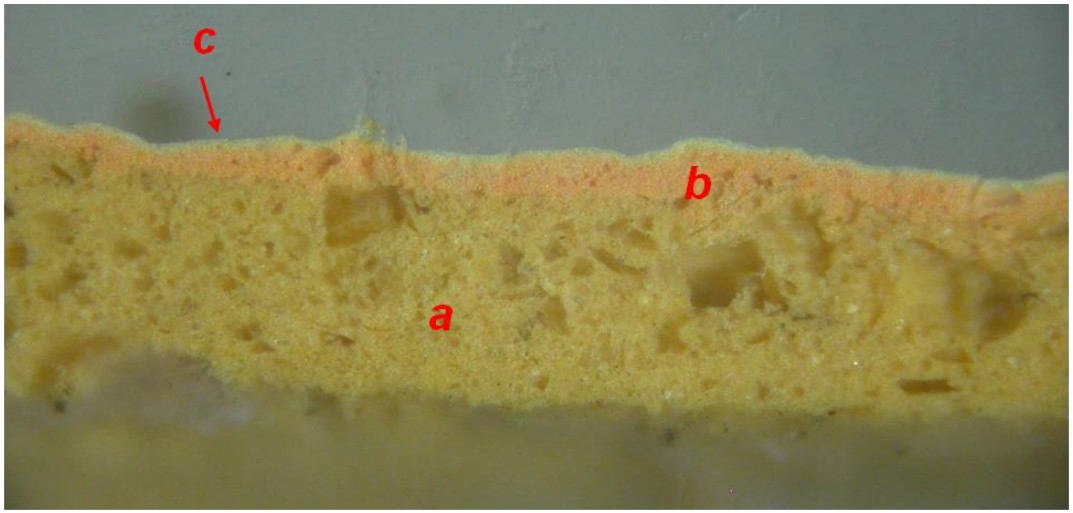


Fig. 6 "Big sacral birds" – sample K2 – cross section – reflected Visible light – magnification 180x

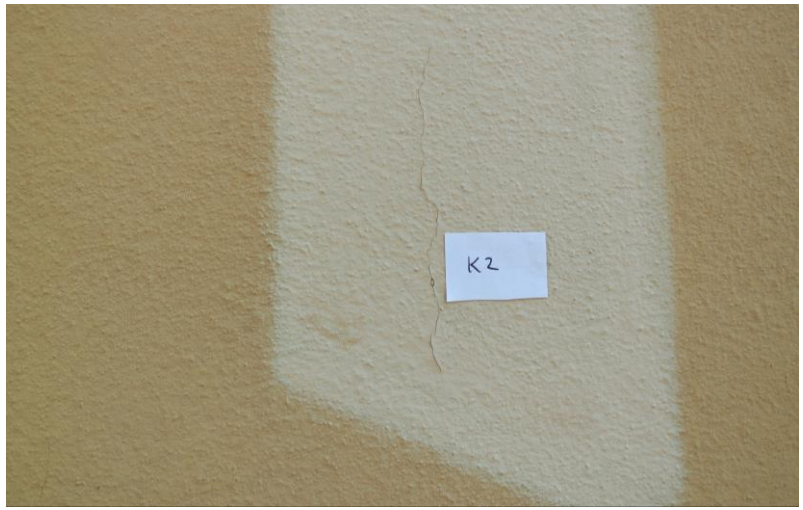


Fig. 7" Big Sacral Bird " – sample K2 – after sampling

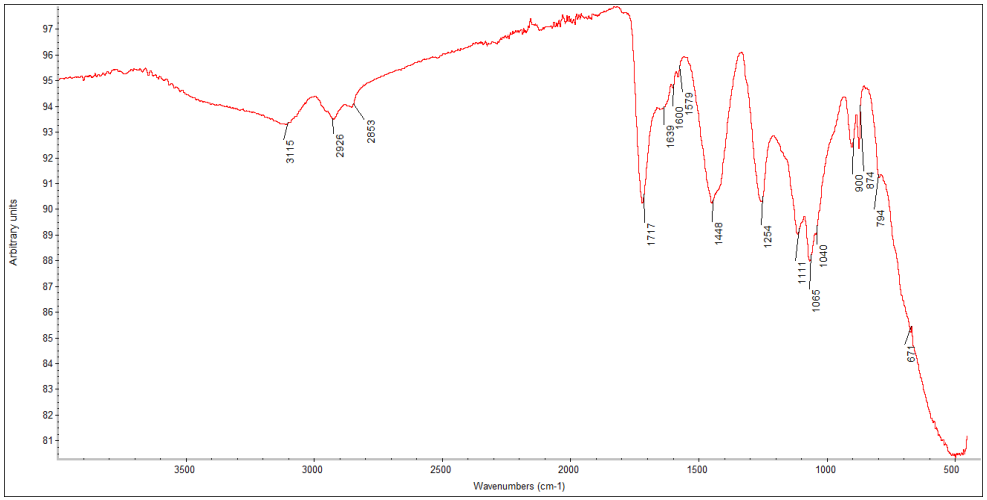


Fig. 9 "Big Sacral Bird"– sample K2 – FTIR-ATR spectrum of the *c* layer

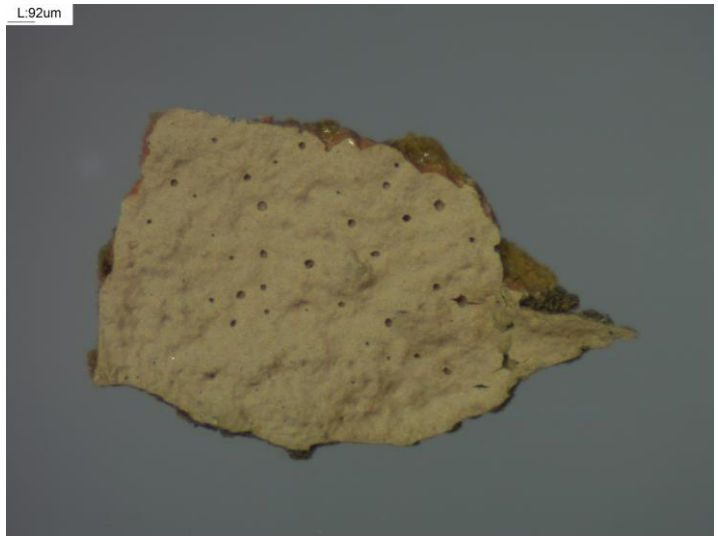


Fig. 8 " Big Sacral Bird " – sample K2 – SM – magnification 45 x

K3 sample was collected along a crack of a pink area (spray paint) (**fig.4,10-11**) that was originally orange.
The study of the K3 sample has shown the following structure and composition:

a) Yellowish ground layer;
b) Orange paint layer;
c) Pink thin layer (patina) mainly composed of alkyd resin (**fig. 12**). This paint layer has been addressed to Py-GC-MS.

Fig. 10" Big Sacral Bird " – sample K3 – after sampling

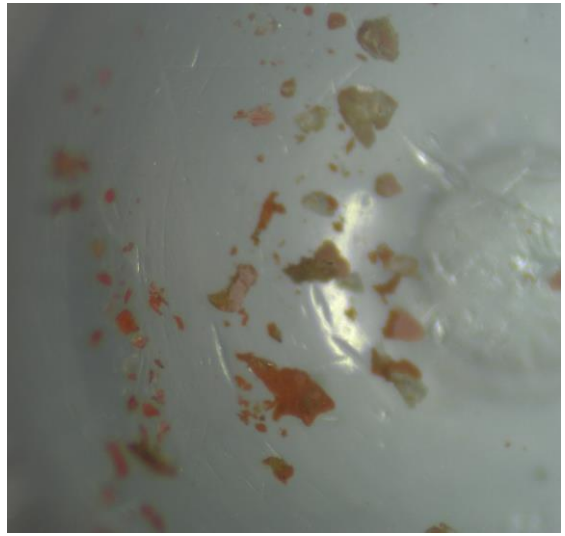


Fig. 11 " Big Sacral Bird " – sample K3 – SM – magnification 45 x

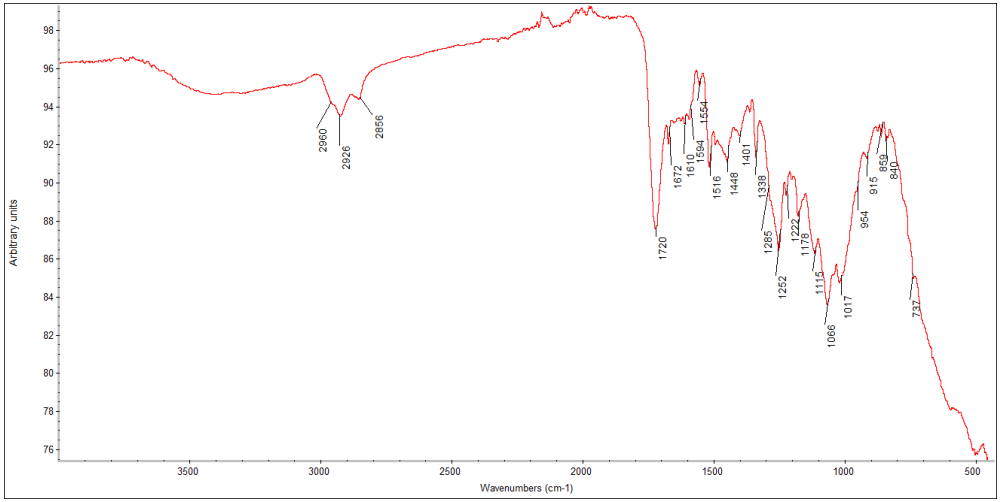


Fig. 12 "Big Sacral Bird"– sample K3 – FTIR-ATR spectrum of the pink layer

K4 sample was collected along a crack of an orange area (spray paint) (**fig.4,13-14**) that was originally lighter.
The study of the K4 sample has shown the following structure and composition:

a) Yellowish ground layer;
b) Orange paint layer with a glossy whitish superficial patina, containing an alkyd resin modified with nitrocellulose, an acetoacetic arylide based pigment (PY74)plus likely goethite (**fig. 15**). Differences between FTIR spectra collected on the top of the sample and on the inner part have been observed. This paint layer has been addressed to Py-GC-MS.

Fig. 13" Big Sacral Bird " – sample K4 – after sampling

Fig. 14 " Big Sacral Bird " – sample K4 – SM – magnification 30 x

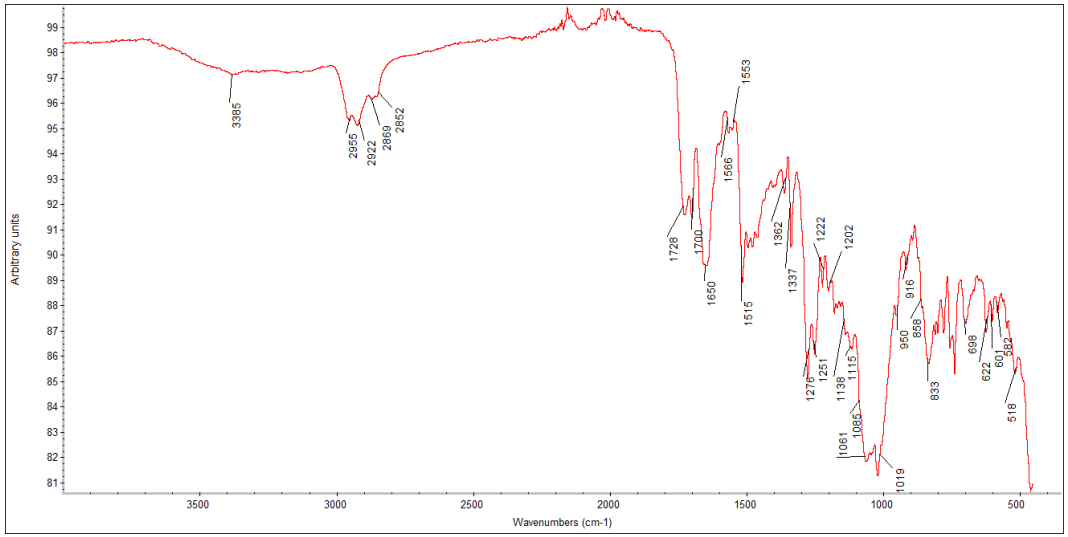
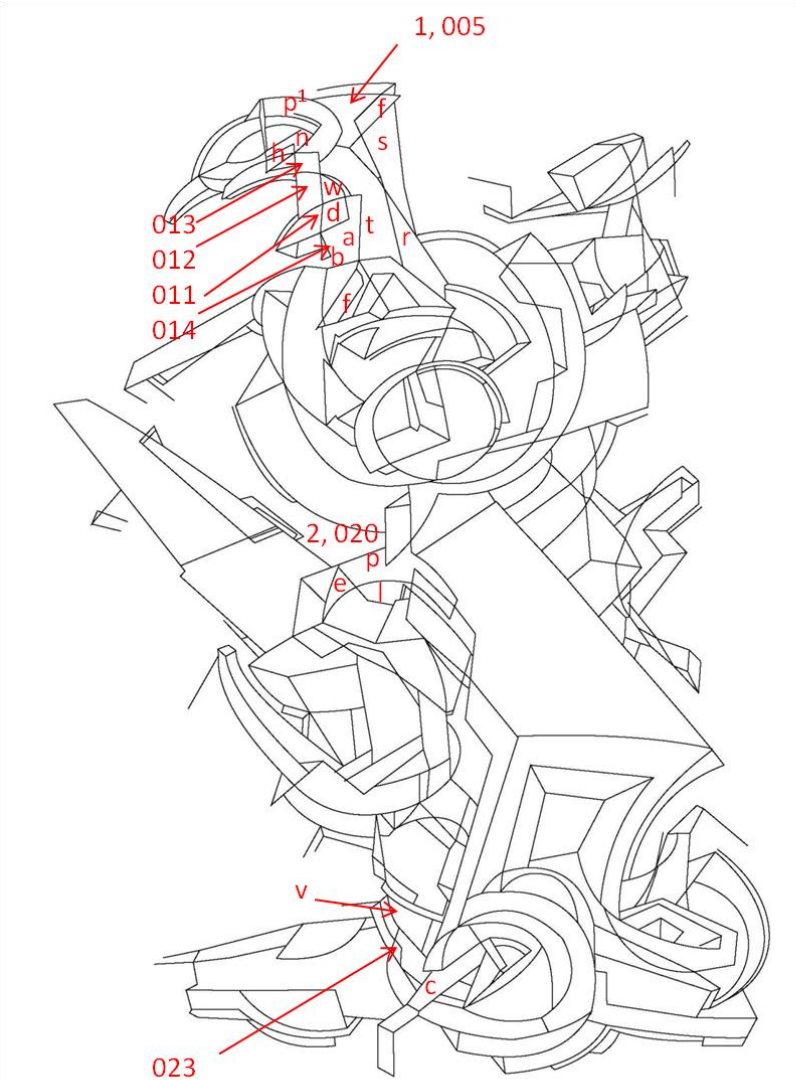


Fig. 15 "Big Sacral Bird"– sample K4 – FTIR-ATR spectrum of the orange paint layer



Points of measure for in situ Raman sp.:

a. Light orange > pale yellow
b. Orange > pink
c. Orange > dark orange (K4)
d. Orange-red > brown
e. Orange-red > light purple
f. Red > light Red (023)
h. Light pink > white
l. Salmon pink > whitish color
n. Pink > white
p. Orange > pink
p^1. light violet > dark violet
r. Purple > violet
s. Pale yellow > whitish color
t. Lemon yellow > pale yellow
v. Gold yellow > light brown (022) ?
w. Green > greenish color
1. Water Green stable color (005)
2. Military Green stable color (020)
011. Water blue stable color
012. Light blue stable color
013. Light purple stable color
014. Deep blue stable color

Fig. 16 " Big Sacral Bird "– measurement point location

NUMBER OF PARTNER:	P3 Cesmar7, P4 An.t.a.res srl Unipersonale
TYPE OF WORK:	Mural painting
COUNTRY:	Italy
CITY:	Reggio Emilia
ADDRESS:	Via Selo
OWNER / CUSTODIAN:	Cooperativa Case Operaie di Mancasale e Coviolo
ARTIST:	ZOSEN (Proyecto Ritual)
TITLE OF THE WORK:	IL MERCATO TI SOTTOMETTE (the Economy subdues you)
YEAR OF EXECUTION:	2010
MATERIALS:	housepaint acrylic and Montana spray

	Name of the sample	**Original materials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**Z1 S + Z1**	X		µ- Raman on the cross-section sample and Raman in situ	Rutile is present both in the paint layer than in the primer, together with Calcite. The turquoise color is due to a blue pigment (Polycylic pigment, pthalocyanine	FTIR-ATR	Alkyd resin in the paint layer and acrylic one in the	-		Stereomicroscopy on sample fragments	Stratigrafy: a.Brown ground layer b.White prime coating c.Turquoise paint layer d.Whitish

					PB15:3?) and yellow azo pigment (PY74).		ground layer.				layer (patina)
	Z2	X		Raman Spectroscopy in situ	Rutile, Disazopigment, pyrazolone PO34?						
	Z3	X			Rutile, Monoazopigment, acetoacetic arylide PY74						
	Z4	X			Rutile. Pigments to be confirmed; they seem a mix of Hostopen Violet and Naphtol AS (PR22) or family (es. PR8, PR18) or maybe a disazopigment, pyrazolone PO34?						
	Z5	X			Rutile, Disazopigment, pyrazolone PO34						
	Z6	X			Rutile, PO34 Diazopyrazolone						
	Z7	X			Rutile, Monoazopigment, acetoacetic arylide PY74						

	Z8	X			Rutile, Monoazopigment, acetoacetic arylide PY74						
	Z9	X			Rutile, PO34 Diazopyrazolone						
	Z10	X			Rutile, PO34 Diazopyrazolone						
	Z11	X			Rutile, Monoazopigment, acetoacetic arylide PY74						
	Z12	X			Rutile, Monoazopigment, acetoacetic arylide PY74						
	Z13	X			Rutile, Monoazopigment, acetoacetic arylide PY74						

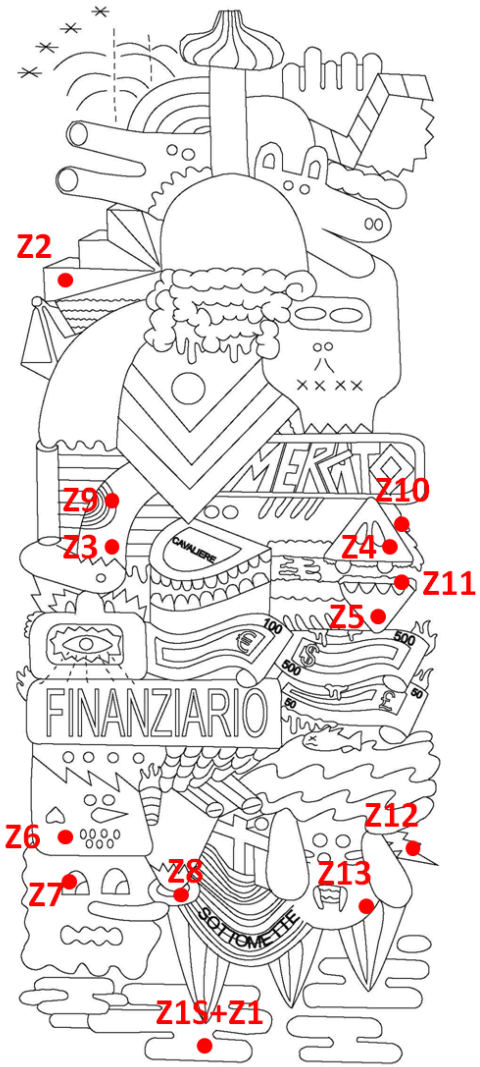
*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

Z1S sample was collected from a turquoise area painted by spray (**fig.1-3**) that faded.
The study of the Z1S sample (**fig. 4-6**) has shown the following structure and composition:

a) Brown ground layer > 700 µm thick containing Quartz grains and a styrene-acrylic polymer;
b) White paint layer (prime coating) filling up the roughness of the layer a., irregular thickness under of 30 µm, composed of Rutile and Calcite; this paint layer has been addressed to Py-GC-MS.
c) Turquoise paint layer containing a mixture of a blue pthalocyanine pigment and yellow azo PY74 based pigment, Calcite and Rutile. Regular feature, average thickness of 30 µm;
d) Whitish layer (patina) is hypothesized, it is too thin to be observed under microscope and measured.
The FTIR-ATR spectra of the turquoise surface have likely shown the presence of an alkyd resin (**fig. 7**). This paint layer has been addressed to Py-GC-MS.

Fig. 1 " IL MERCATO TI SOTTOMETTE " – sample Z1S – before sampling

Fig. 2" IL MERCATO TI SOTTOMETTE" – sample Z1S – after sampling



Sampling map

Z1S + Z1 turquoise> light turquoise - fading
Z2 orange > light orange - fading
Z3 orange > light yellow - chromatic alteration
Z4 pink > white - chromatic alteration
Z5 orange > light yellow - chromatic alteration
Z6 red > purple - chromatic alteration
Z7 orange > white – chromatic alteration
Z8 pink > white - chormatic alteration
Z9 red > violet – chromatic alteration
Z10 red > violet – chromatic alteration
Z11 orange > white - chromatic alteration
Z12 yellow > light yellow – fading
Z13 orange > light orange – fading

Fig. 3 " IL MERCATO TI SOTTOMETTE " – sampling location

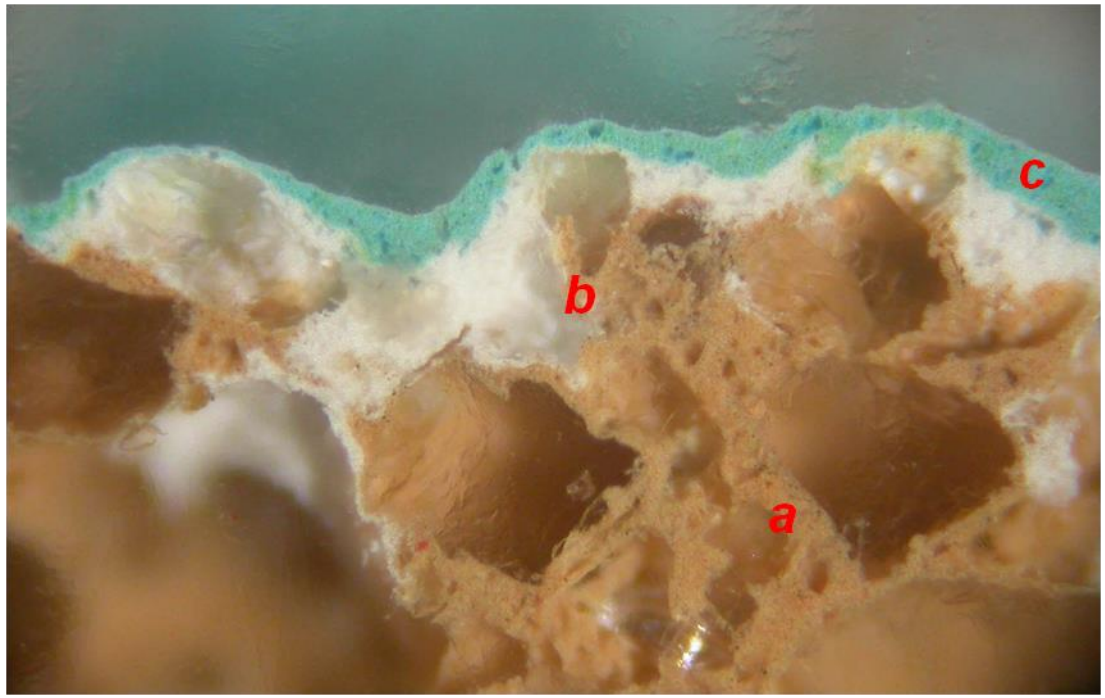


Fig.4 "IL MERCATO TI SOTTOMETTE" – sample Z1S – cross section – reflected Visible light – magnification 200 x

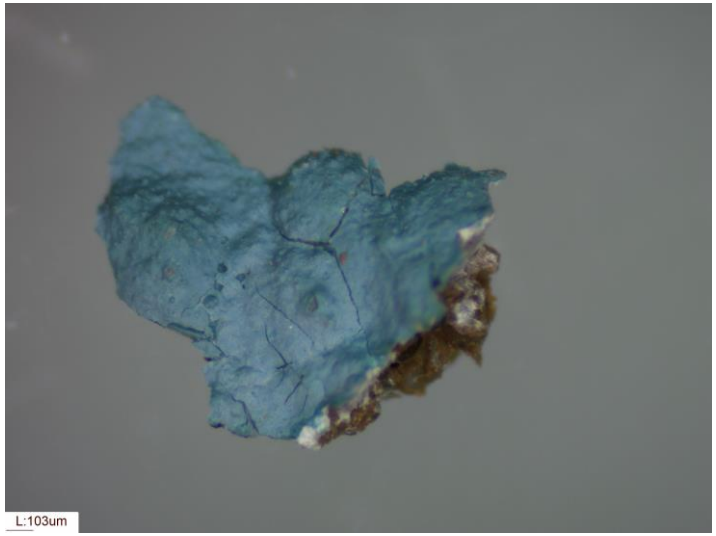


Fig.5 " IL MERCATO TI SOTTOMETTE " – sample Z1S – SM – magnification 40 x

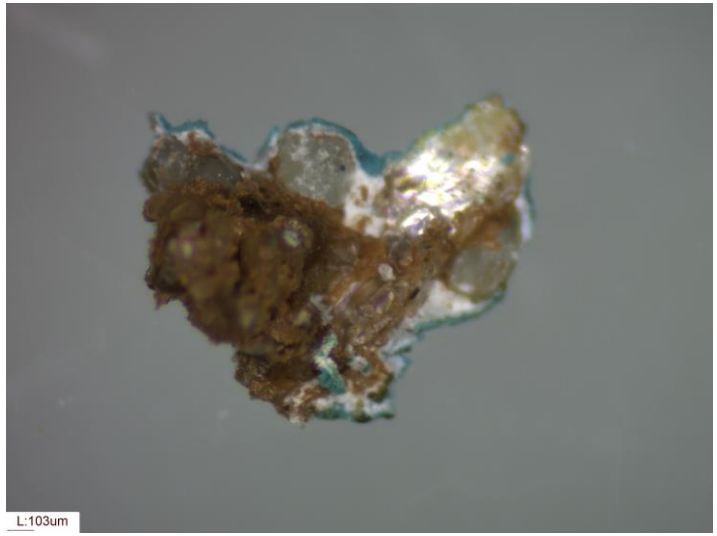


Fig.6 " IL MERCATO TI SOTTOMETTE " – sample Z1S – SM – magnification 40 x

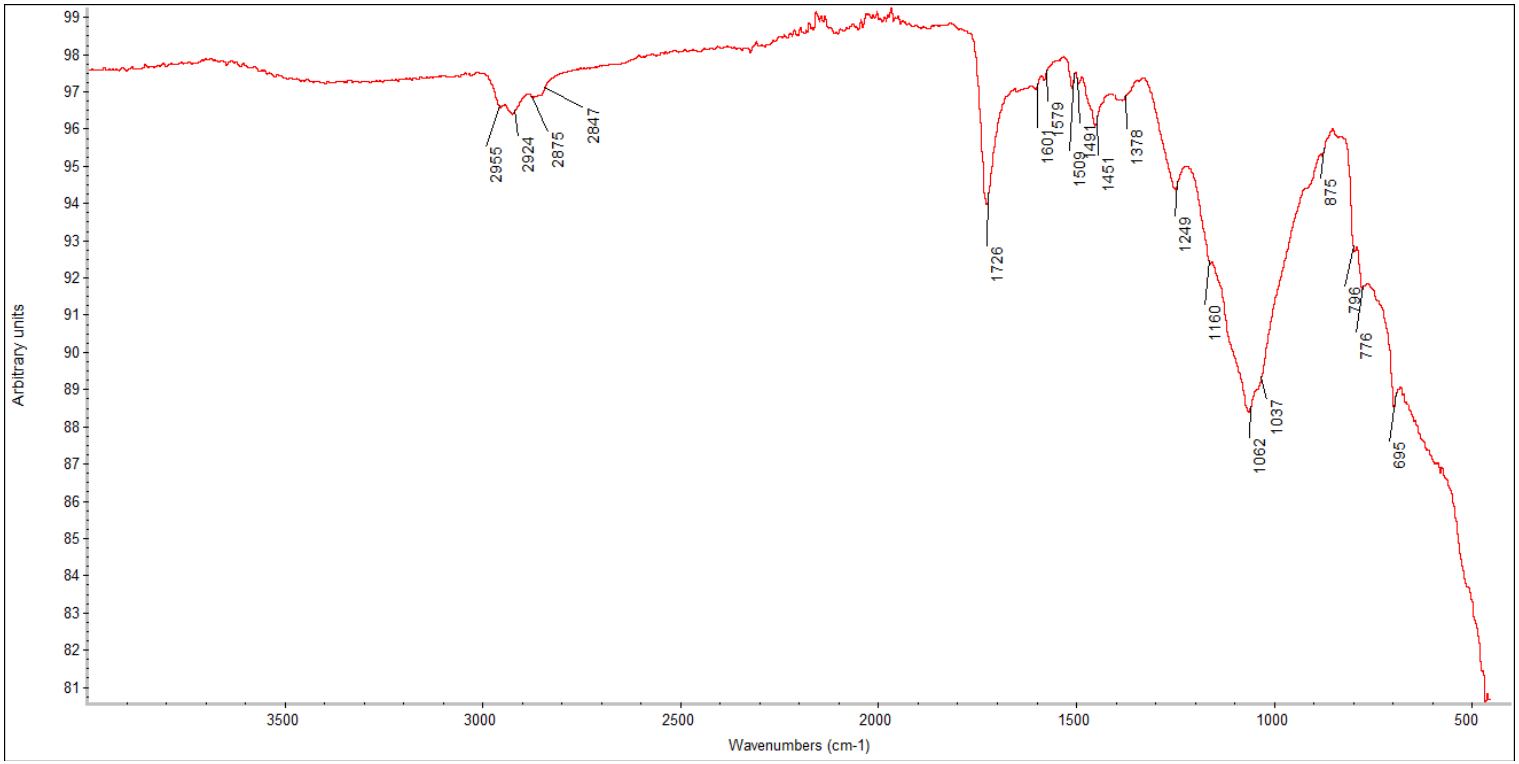


Fig.7 "IL MERCATO TI SOTTOMETTE" – sample Z1S – FTIR-ATR spectrum of the turquoise surface

NUMBER OF PARTNER:	P3 Cesmar7, P4 An.t.a.res srl Unipersonale
TYPE OF WORK:	Mural painting
COUNTRY:	Italy
CITY:	Reggio Emilia
ADDRESS:	Via Selo
OWNER / CUSTODIAN:	Cooperativa Case Operaie di Mancasale e Coviolo
ARTIST:	H101 (Proyecto Ritual)
TITLE OF THE WORK:	Oriental carpet of colors
YEAR OF EXECUTION:	2010
MATERIALS:	housepaint acrylic and Montana spray

	Name of the sample	**Original materials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	H1	X		μ- Raman Spectroscopy on the cross-section sample and Raman Spectroscopy in situ	Rutile is the main compound of the whitish patina and the white primer. The orange pigment is PO34 Diazopyrazolone	FTIR-ATR	Alkyd resin is present both in the orange/red paint layer than, in lesser amount, in its patina	-		Stereomicroscopy on sample fragments	Stratigraphy: a.Ground layer b.Yellowish ground layer c.White prime coating d. Paint layer e.Whitish thin layer patina
2	H2	X									

3	H3	X		Raman Spectroscopy in situ	Rutile, Polycyclic p., diketopyrrolo-pyrrole (DPP), PR254						
4	H4	X			not identified		Acrylic resin				micro-appearance of the painting layer
5	H5	X			Rutile, Probably disazopigment, pyrazolone PO34?		Alkyd resin both in the pink paint layer than, in lesser amount, in its white patina				Stratigraphy: a.Ground layer b.Yellowish ground layer c.White prime coating d. Paint layer e.White thin layer patina
6	H6	X			Rutile, Monoazopigment, acetoacetic arylide PY74						

*** mortars, stone, metal ect.** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

H1 sample was collected from a purple area painted by spray (**fig.1-3**) that was originally red.
The study of the H1 sample has shown the following structure and composition:

e) Traces of the plaster ground layer;
f) Yellowish ground layer, regular feature and thickness (about 130 µm).
The FTIR-ATR spectra collected on *a+b* layers have shown: Calcite, silicates, traces of an acrylic-resin based;
g) White paint layer (prime coating) composed of Rutile, Calcite, silicates, likely acrylic based resin, regular feature and irregular thickness, average thickness of 20 µm;
h) Orange paint layer due to PO34 – Diazopyrazolone and containing alkyd resin (**fig. 4**) with likely low amount of styrene**,** Calcite and Rutile. Regular feature, average thickness of 40 µm;
i) Whitish thin (< 10µm) layer (patina), same composition of the layer *d*, with less quantities of alkyd resin (**fig. 5**).

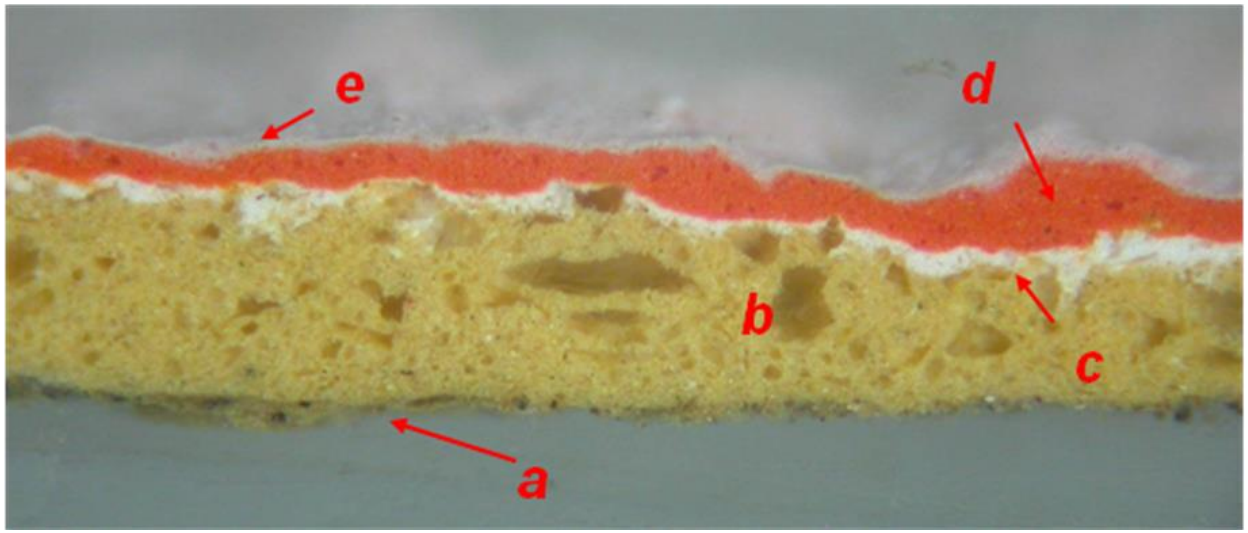
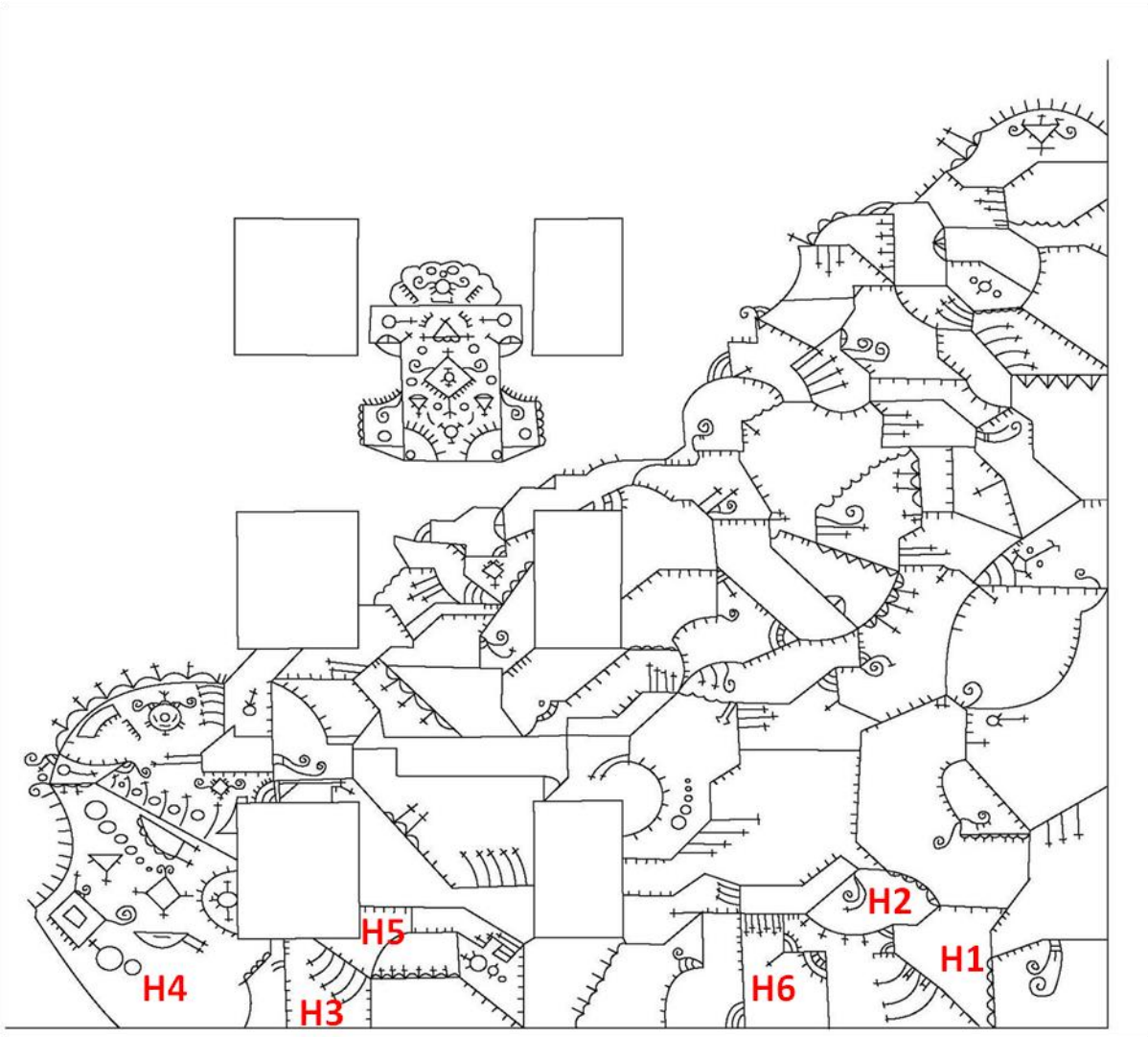


Fig. 1 "Oriental carpet of colors" – sample H1 – cross section – reflected Visible light –OM – magnification 150 x

Fig. 2 "Oriental carpet of colors" – sample H1 – after sampling



Sampling map:

H1 red > violet
H2 red > pink
H3 stable red color
H4 stable red color
H5 pink > white
H6 orange > pink

Fig. 3 "Oriental carpet of colors" – sampling location

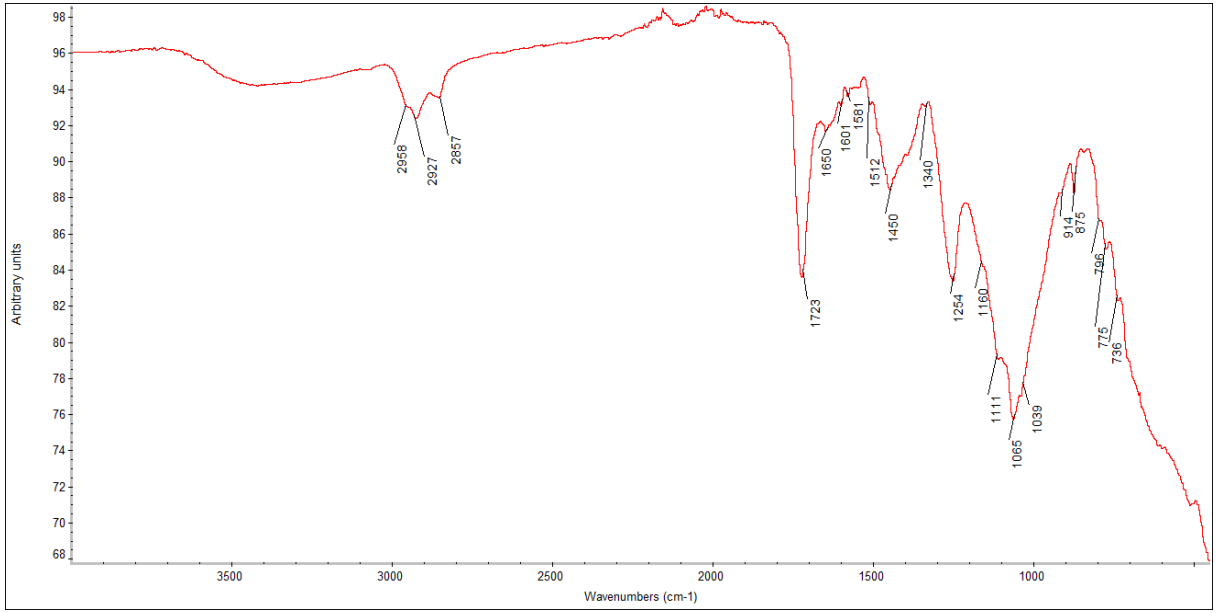


Fig. 4 "Oriental carpet of colors" – sample H1 – FTIR-ATR spectrum of the *d* paint layer

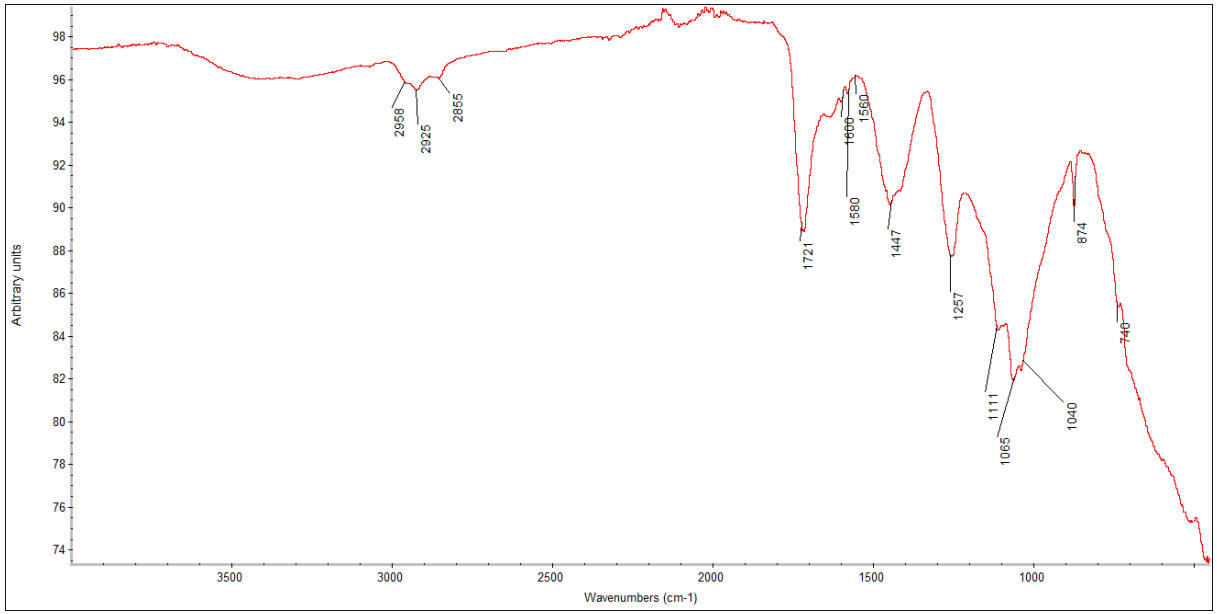


Fig. 5 "Oriental carpet of colors" – sample H1 – FTIR-ATR spectrum of the *e* layer (patina)

H2 sample was collected from a salmon pink area painted by spray (**fig.3,6-7**) that was originally orange/red.
The study of the H2 sample has shown the same layered structure of the H1:

- ***a)*** Traces of the plaster ground layer;
- ***b)*** Yellowish ground layer;
- ***c)*** White paint layer (prime coating);
- ***d)*** Orange paint layer containing an alkyd resin (**fig. 8**);
- ***e)*** Whitish thin and fragile layer (patina) (**fig. 7**) due to optical alteration of the layer *d*. Same composition of the layer *d*, with minor quantities of resin.

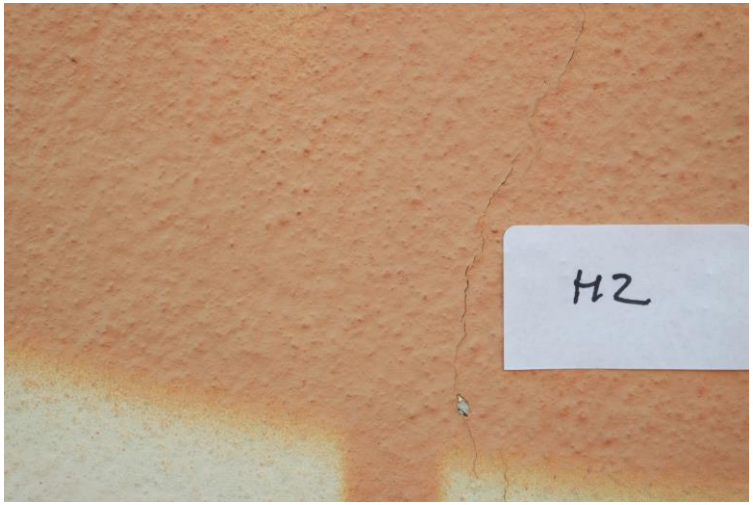


Fig. 6 "Oriental carpet of colors" – sample H2 – after sampling

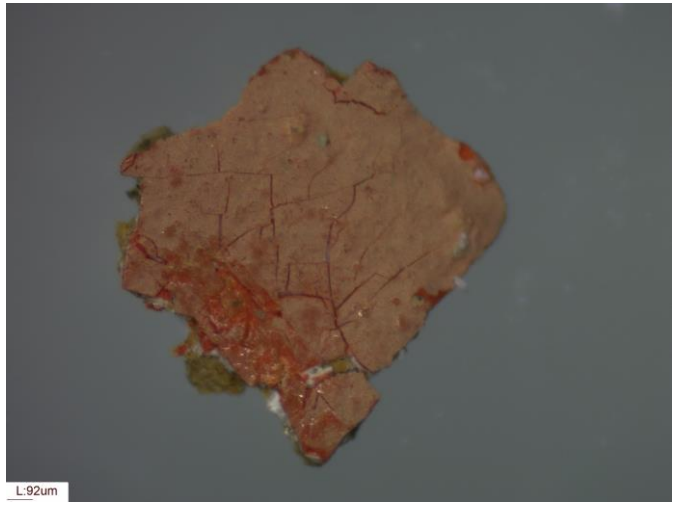


Fig. 7 "Oriental carpet of colors" – sample H2 with the patina partially scraped by scalpel– SM – magnification 45 x

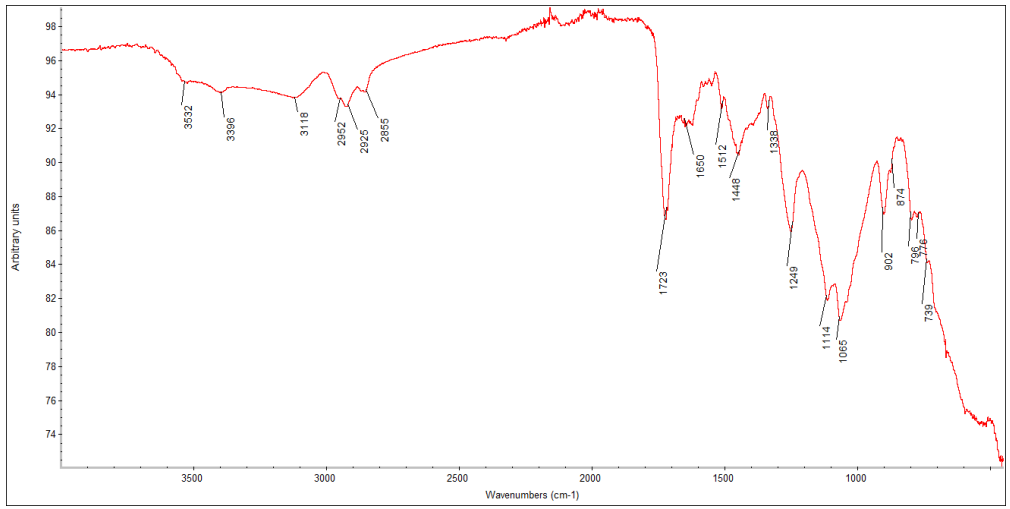


Fig. 8 "Oriental carpet of colors" – sample H2 – FTIR-ATR spectrum of the *d* paint layer

H3 sample was collected from a red area painted by spray (**fig.3,9**) apparently not optically altered.
The study of the H3 sample has shown the same layered structure of the H1:

- ***a)*** Traces of the plaster ground layer;
- ***b)*** Yellowish ground layer;
- ***c)*** White paint layer (prime coating);
- ***d)*** Red paint layer containing an alkyd resin (**fig. 10-11**) Rutile and Polycyclic p., diketopyrrolo-pyrrole (DPP), PR254;
- ***e)*** Whitish thin and semigloss layer (patina) due to optical alteration of the layer *d*. About the same FTIR pattern of *d* layer, with less quantities of resin.

Fig. 9 "Oriental carpet of colors" – sample H3– after sampling

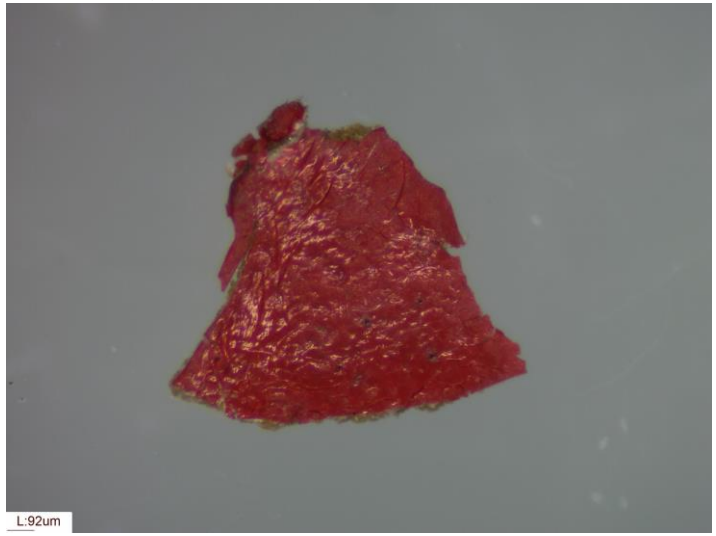


Fig. 10 "Oriental carpet of colors" – sample H3– SM – magnification 45 x

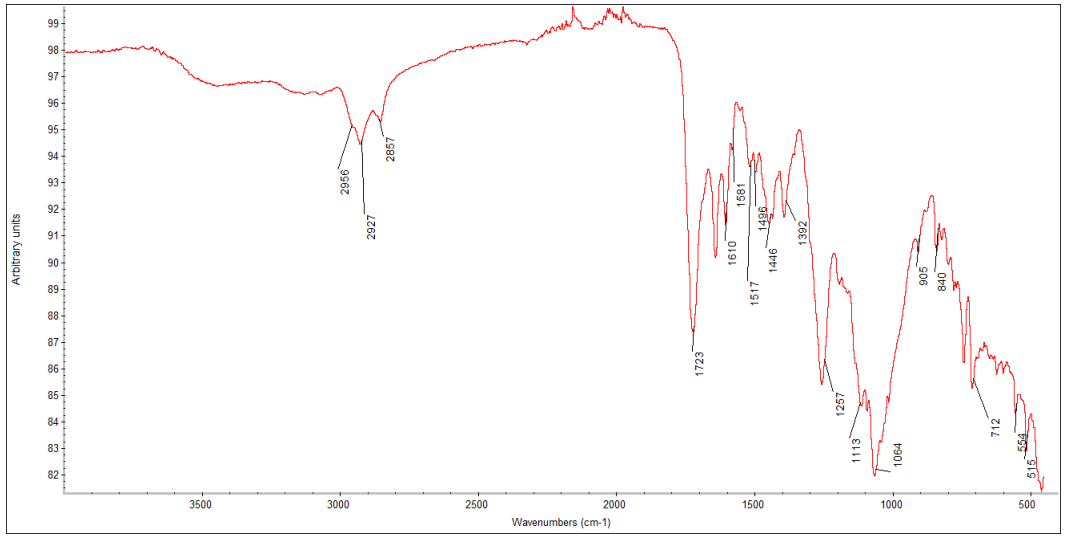


Fig. 11 "Oriental carpet of colors" – sample H3 – FTIR-ATR spectrum of the *d* paint layer

H4 sample was collected from a red area painted by roller (**fig.3,12**). The surface of the paint layer appears slightly darker, less porous and glossier than the inner (**fig. 13**); it is composed of an acrylic binder (**fig. 14**), Calcite as extender, the pigment has not been identified.

Fig. 12 "Oriental carpet of colors" – sample H4– after sampling

Fig. 13 "Oriental carpet of colors" – sample H4 – SM –magnification 30 x

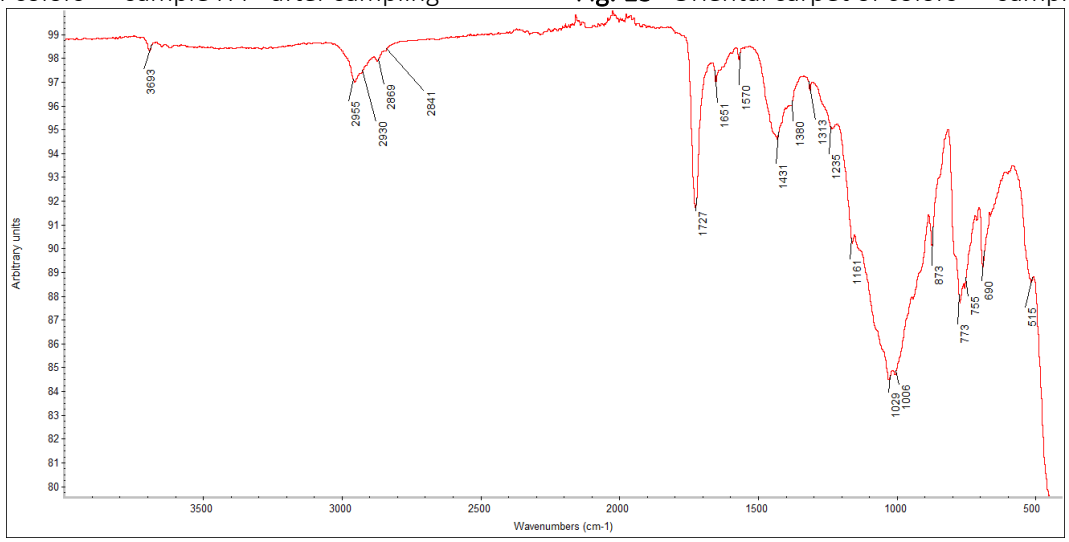


Fig. 14 "Oriental carpet of colors" – sample H4 – FTIR-ATR spectrum

H5 sample was collected from a white area painted by spray (**fig.3,15-16**) that was originally pink.
The study of the H5 sample has shown the same layered structure of the H1:

- *a)* Traces of the plaster ground layer;
- *b)* Yellowish ground layer, 120 µm thick;
- *c)* White paint layer (prime coating), 15-50 µm thick;
- *d)* Pink paint layer, 4-25 µm thick, containing alkyd resin as a binder and Calcite as extender (**fig. 17**);
- *e)* White thin (about 15 µm) layer (**fig. 16**) due to optical alteration of the layer *d*. Same composition of the layer *d*, with minor quantities of resin. Raman spectra have shown peaks of Rutile, and probably disazopigment, pyrazolone PO34. The paint layers d and e have been addressed to Py-GC-MS.

Fig. 15 "Oriental carpet of colors" – sample H5 – after sampling

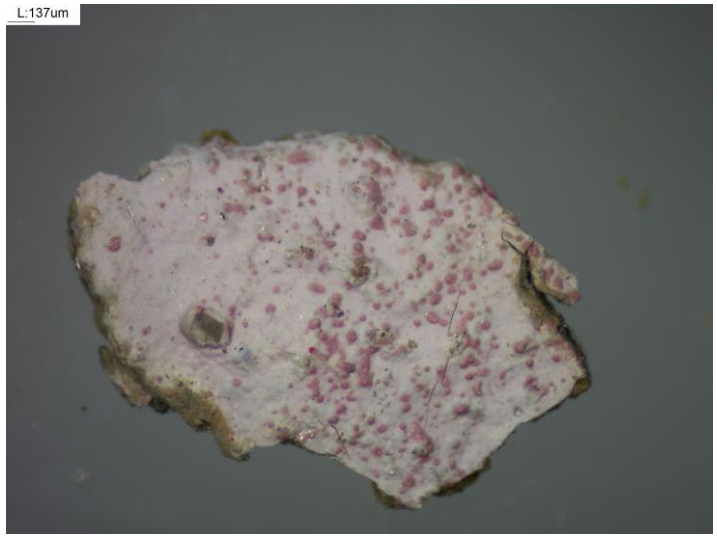


Fig. 16 "Oriental carpet of colors" – sample H5 – SM –magnification 30 x

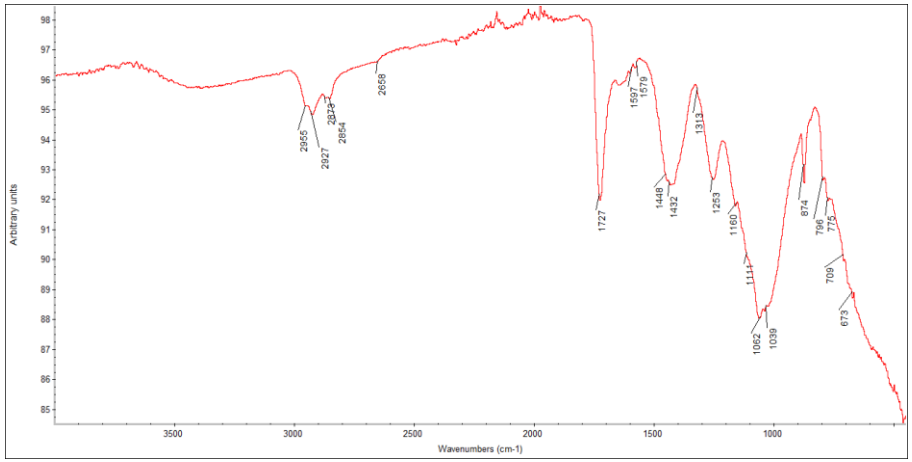


Fig. 17 "Oriental carpet of colors" – sample H5 – FTIR-ATR spectrum

NUMBER OF PARTNER:	P3 Cesmar7, P4 An.t.a.res srl Unipersonale
TYPE OF WORK:	Mural painting
COUNTRY:	Italy
CITY:	Milan
ADDRESS:	Via Ettore Majorana/Via Graziano Imperatore
OWNER / CUSTODIAN:	Municipality of Milan
ARTIST:	VolksWriterz
TITLE OF THE WORK:	Niguarda Antifascista
YEAR OF EXECUTION:	2014
MATERIALS:	housepaint and spray

	Name of the sample	**Original materials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**1**	X		µ- Raman on the cross-section sample	Calcite and Rutile are ubiquitous, pigments not yet fully identified			-		Stereomicroscopy	Stratigraphy:
2	**2**		X?								Stratigraphy:
3	**3**		X			FTIR-ATR	Poly vinyl acetate, Calcite				micro-appearance

4	**4**		X								Stratigraphy:
5	**5**		X								Stratigraphy:
6	**6**	X		µ- Raman Spectroscopy on the cross-section sample	Naphtol AS (PR22) or family (es. PR8, PR18)	FTIR-ATR	Alkyd resin				Stratigraphy:

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

Sample 1 was collected from a black area painted by brush (**fig.1-2**) completely detached (scaling).
The study of the sample has shown the following structure and composition:

j) Concrete based plaster support, thickness > 1 cm, at low quality (full of glass and rust fragments) containing crystalline silica mineral Quartz;
k) Yellow ground layer at irregular thickness, 300 µm max thick, containing Calcite, Rutile and probably PY74 acetoacetic arylide;
l) White paint layer (prime coating) with the same composition of layer *b*, irregular feature, average thickness of 50 µm;
m) Black paint layer at regular feature, average thickness of 70 µm, the black pigment has not yet been identified.

Sample 2 was collected from a white area painted by brush (**fig.1**) completely detached (scaling).
The study of the sample has shown the following structure (**fig.3**):

a) Concrete based plaster support, thickness > 1 cm, at low quality (full of glass, rust fragments, insect nest);
b) White paint layer, irregular thickness, 230 µm thick;
c) (Thin red paint layer, discontinuous, only sometimes);
d) White continuous paint layer, average thickness of 180 µm;
e) White paint layer, average thickness of 140 µm, it seems a not original paint color.

Sample 3 was collected from a deteriorated red area painted by brush (**fig.1**); it is not original.
The sample has shown the presence of a poly vinyl acetate resin, Calcite and the following structure (**fig.4-5**):

a) Red and glossy chip, about 100 µm thick;
b) Thin whitish patina, irregular feature

This sample has been addressed to Py-GC-MS.

Sample 4 was collected from a biodeteriorated red area painted by brush (**fig.1**); it is not original.
The sample is similar to sample 3 with dark bio patina (**fig.6).**

Sample 5 was collected from a white area painted by brush (**fig.1**) completely detached (scaling).
The study of the sample has shown the following structure (**fig.7-8**):

a) Concrete based plaster support, thickness > 1 cm, at low quality;
b) Yellow ground layer at irregular thickness, 315 µm max thick;
c) White paint layer (prime coating);
d) Thin white paint layer, irregular thickness, 30-45 µm thick;
e) Thin white paint layer, irregular thickness, 30-45 µm thick, realized after the *d)* layer.

Additional layers have been observed in a portion of the sample without the c) primer, likely due to a vandalism:

b1) Red ground layer, irregular feature, 120-187 µm thick;
b2) Thick black paint layer (130-150 µm up to 193 µm), irregular feature, due a graffito (swastika).

Sample 6 was collected from a red area painted by brush (**fig.1**) detached and a bit faded.
The study of the sample has shown the following structure (**fig9-12**):

a) Concrete based plaster support;
b) Very thin (4-7 µm) magenta paint layer, irregular, it is probably the original outline of the letter before painting;
c) Yellow ground layer, continuous, irregular thickness, from 150 to 400 µm thick;
d) White paint layer (prime coating), up to 300 µm thick;
e) Red paint layer, about 70 µm thick, continuous, containing alkyd resin with Calcite, likely silicates and pigment as Naphtol AS (PR22) or family (es. PR8, PR18). Whitish patina has been observed on the top the micro-sample. This paint layer has been addressed to Py-GC-MS.

Sample	Color	Yellow ground layer	Red Primer	White Primer	Binder
1	Black	YES	NO	YES	
2	White (not original)	NO	NO	YES	
3	Red (not original, alterated)	-		-	Poly vinyl acetate
4	Red (not original, alterated)	.		-	
5	White (not original)	YES	YES	YES	-
6	Red (alterated)	YES	NO	YES	Alkydic

“ Niguarda Antifascista ” – sample 1

“ Niguarda Antifascista ” – sample 2

4“ Niguarda Antifascista ” – sample 3

Niguarda Antifascista ” – sample 4

“ Niguarda Antifascista ” – sample 5

“ Niguarda Antifascista ” – sample 6

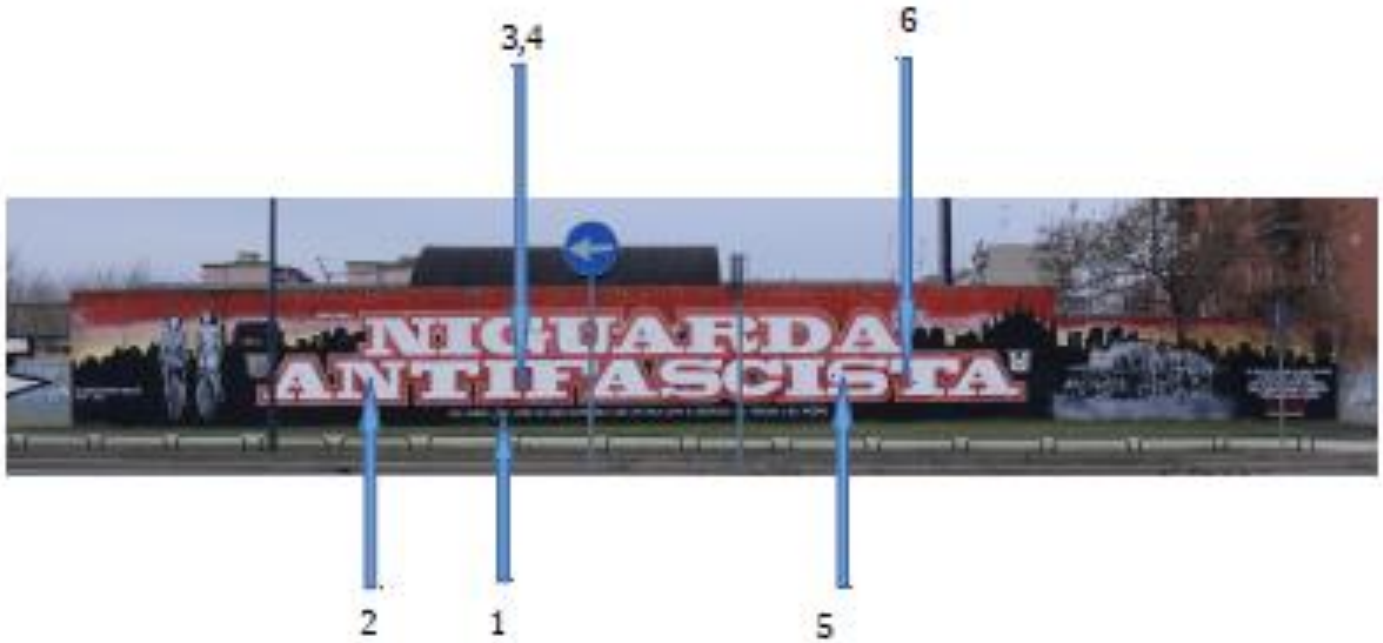


Fig. 1 " Niguarda Antifascista " – sampling location

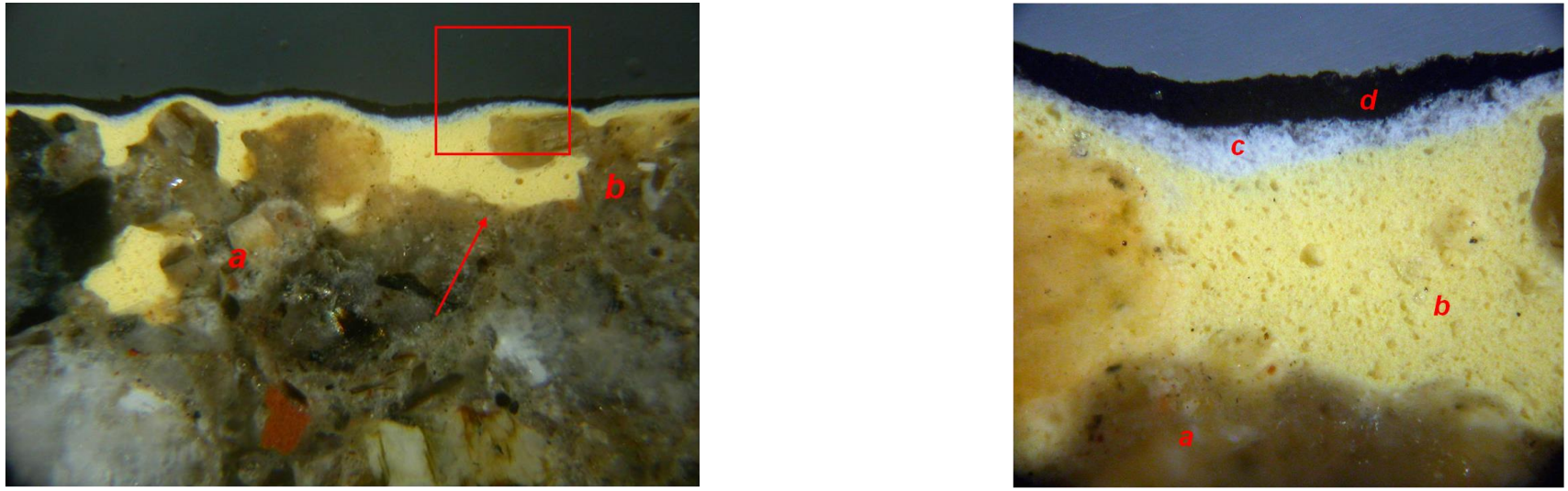


Fig. 2 "Niguarda Antifascista" – sample 1 – cross section – reflected Visible light – magnification 35 x (left) 150 x (right)

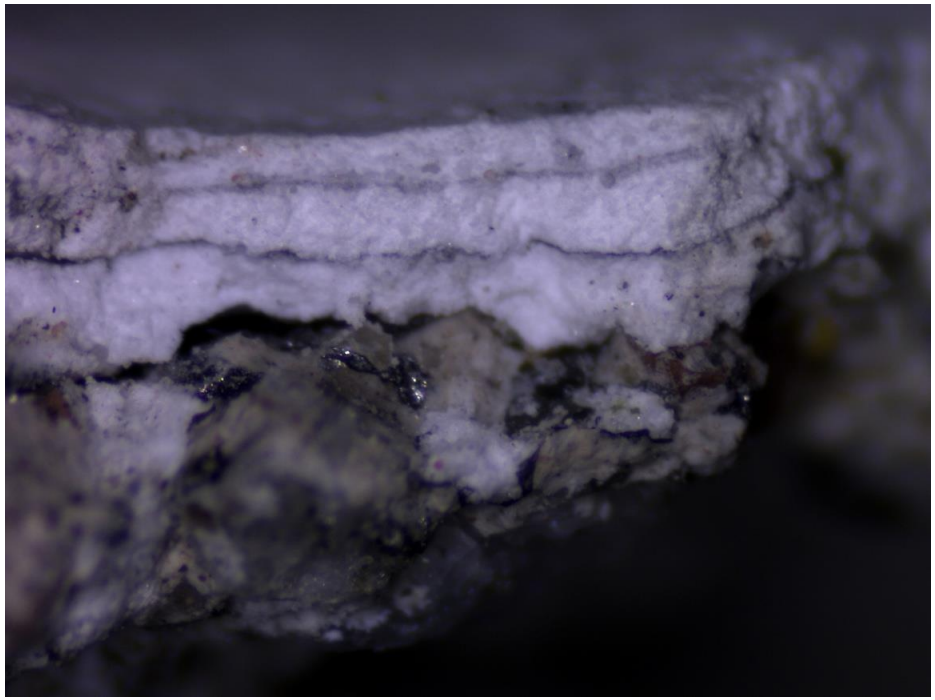


Fig. 3 "Niguarda Antifascista" – sample 2 – reflected Visible light – magnification 45 x

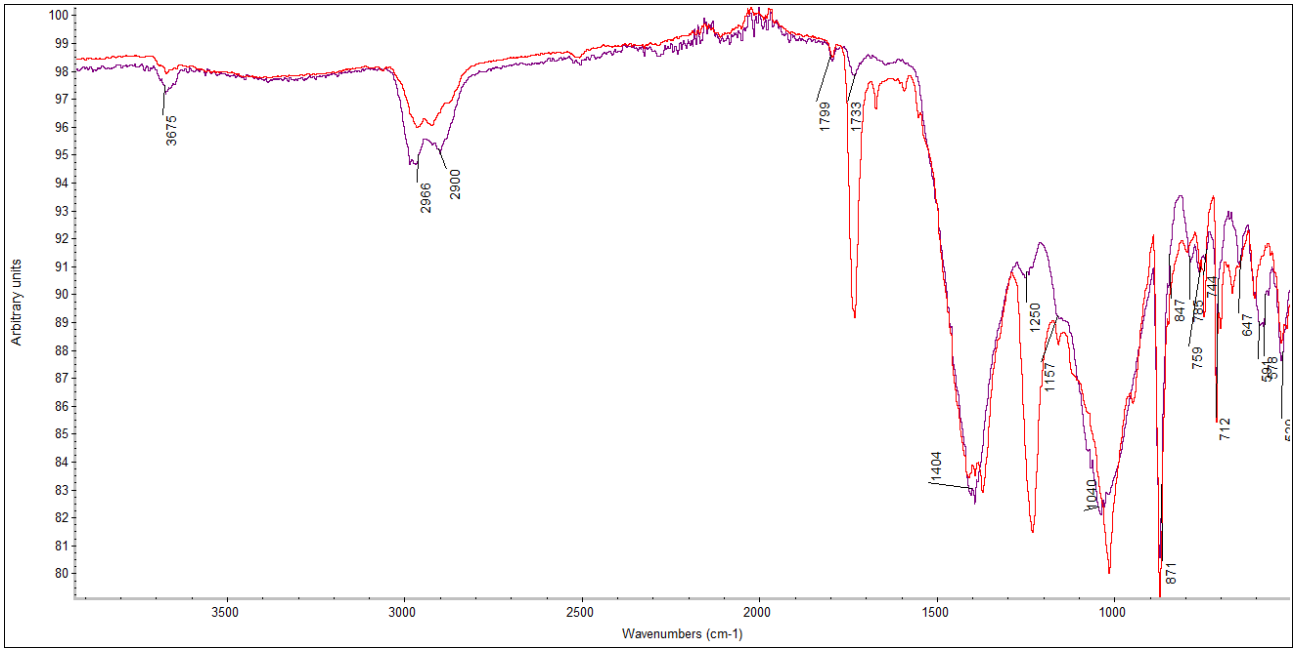


Fig. 4 " Niguarda Antifascista " – sample 3 - FTIR-ATR spectrum of the red surface

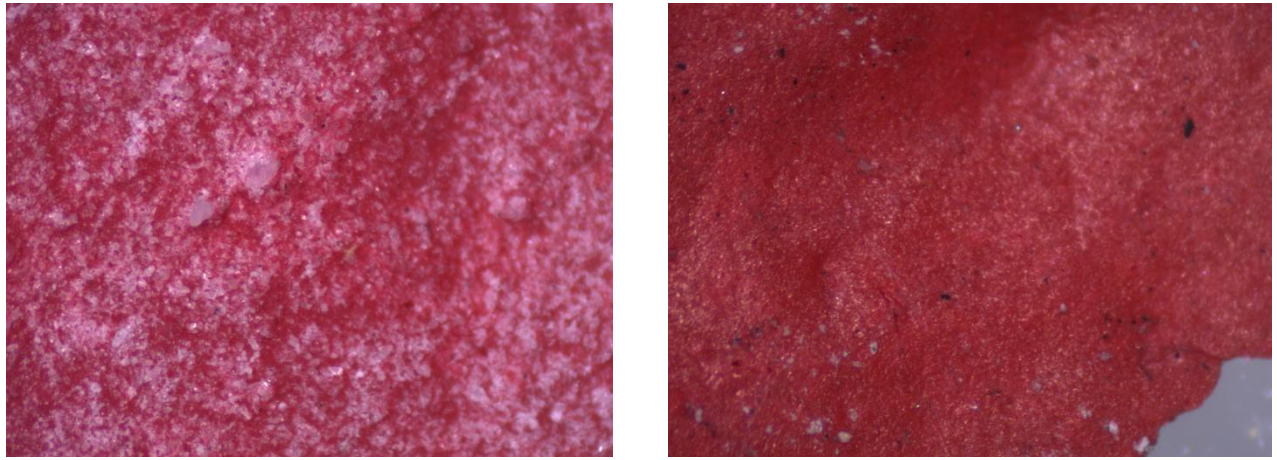


Fig. 5 " Niguarda Antifascista " – sample 3 - reflected Visible light – recto (left) e verso (right)- magnification 45 x

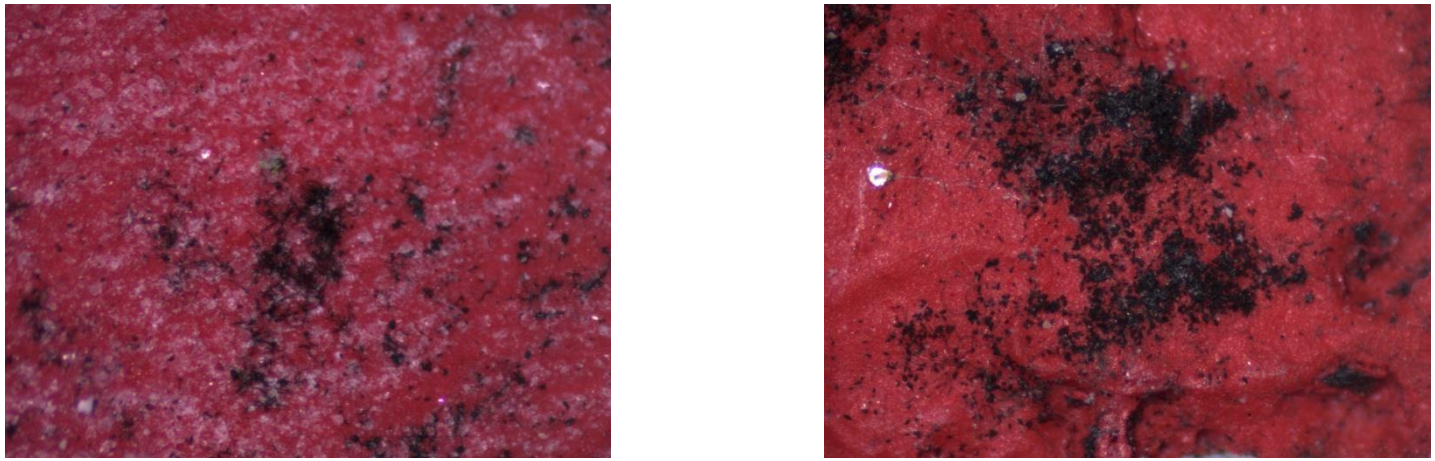


Fig. 6 " Niguarda Antifascista " – sample 4 - reflected Visible light – recto (left) e verso (right)- magnification 45 x

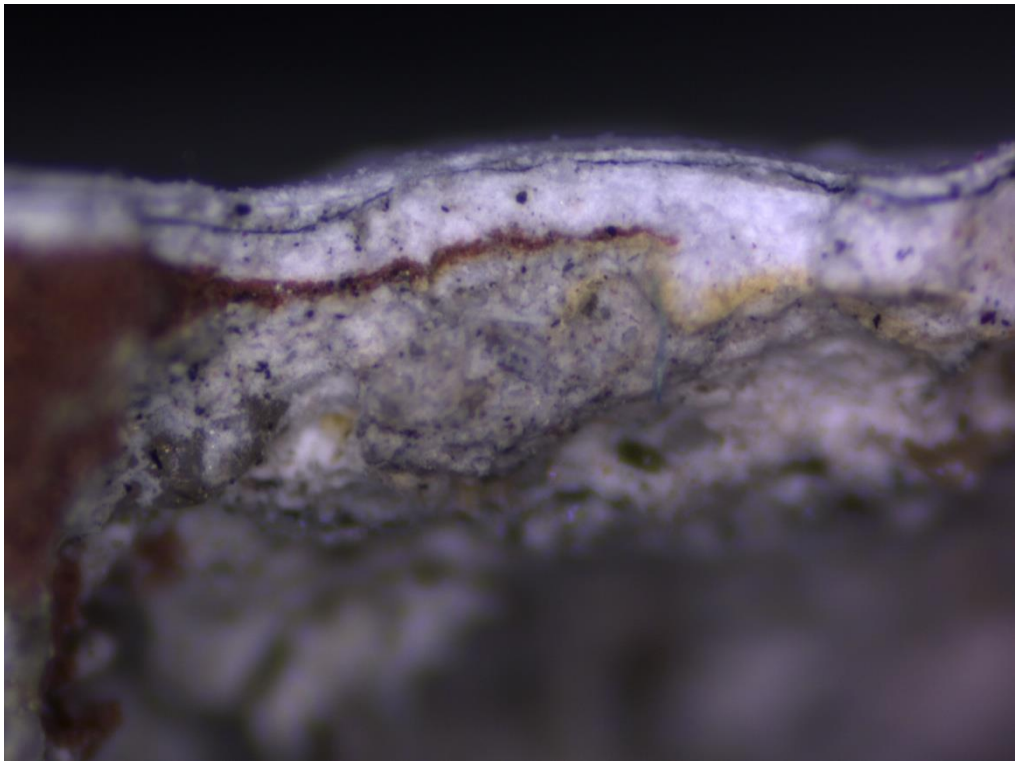


Fig. 7 " Niguarda Antifascista " – sample 5 - reflected Visible light - magnification 45 x

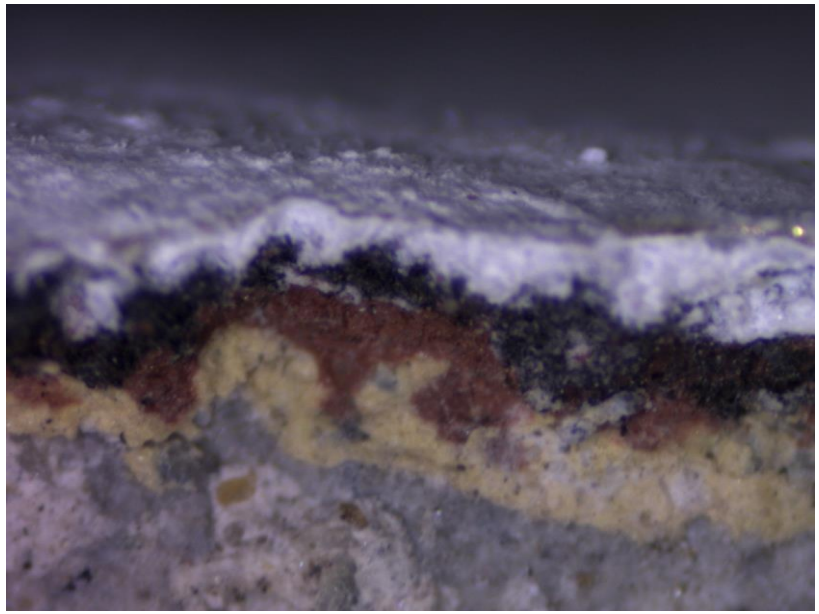


Fig. 8 " Niguarda Antifascista " – sample 5 - reflected Visible light - magnification 45 x

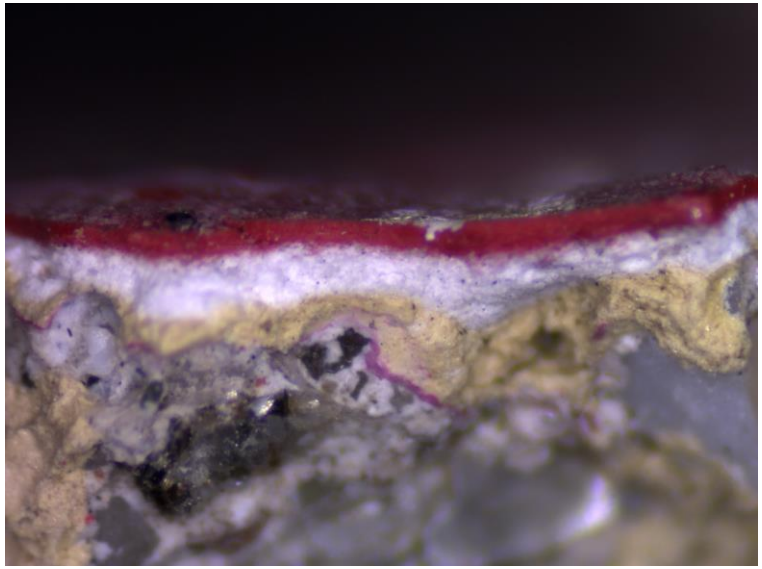


Fig. 9 " Niguarda Antifascista " – sample 6 - reflected Visible light - magnification 45 x

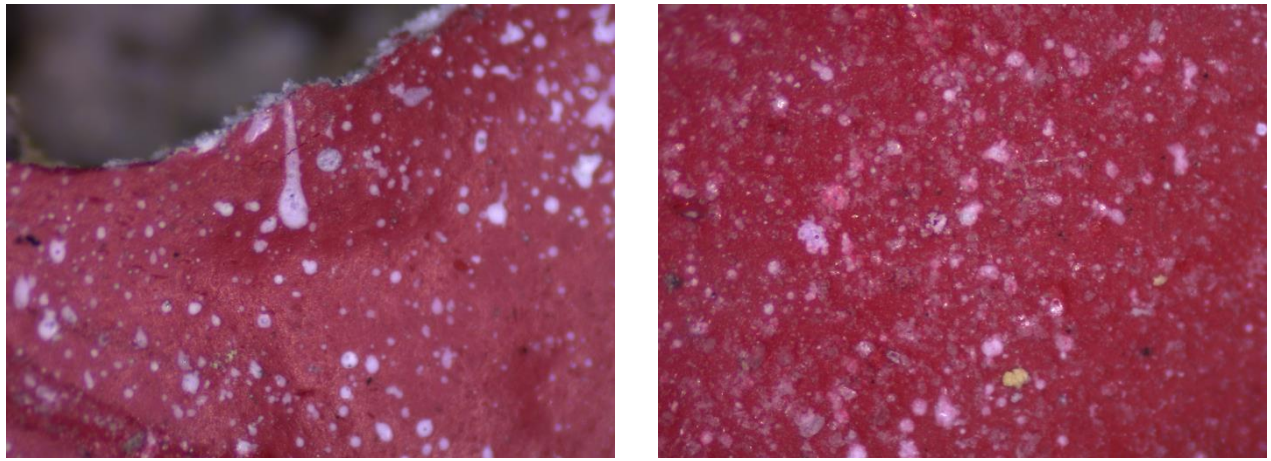


Fig. 10 " Niguarda Antifascista " – sample 6 - reflected Visible light - magnification 45 x

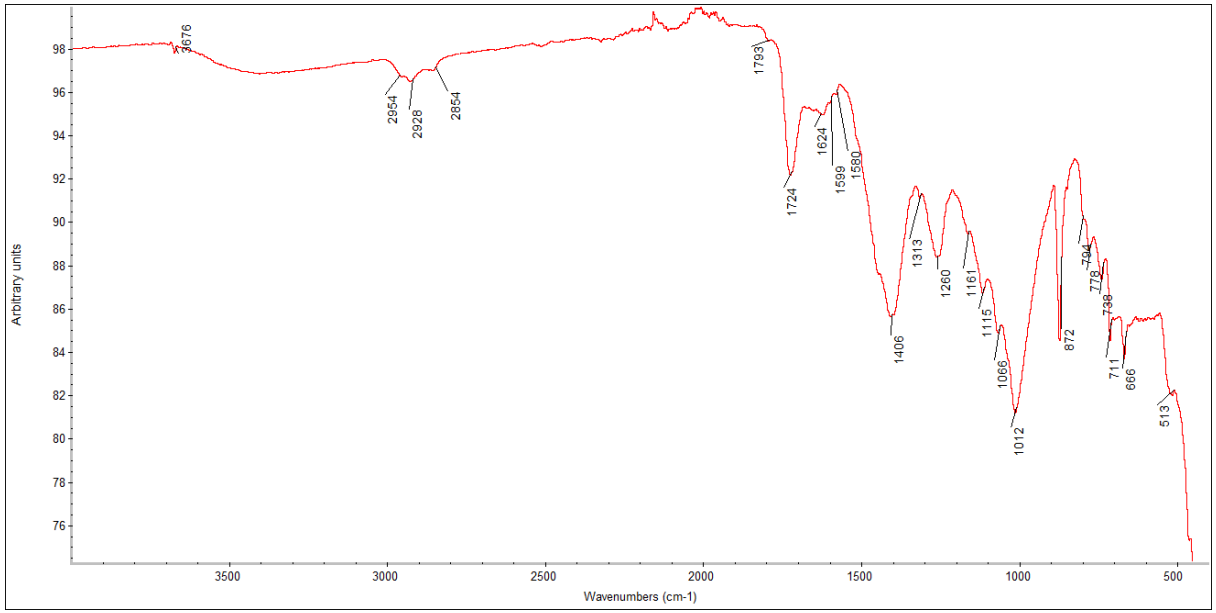


Fig. 11 " Niguarda Antifascista " – sample 6 - FTIR-ATR spectrum of the red surface

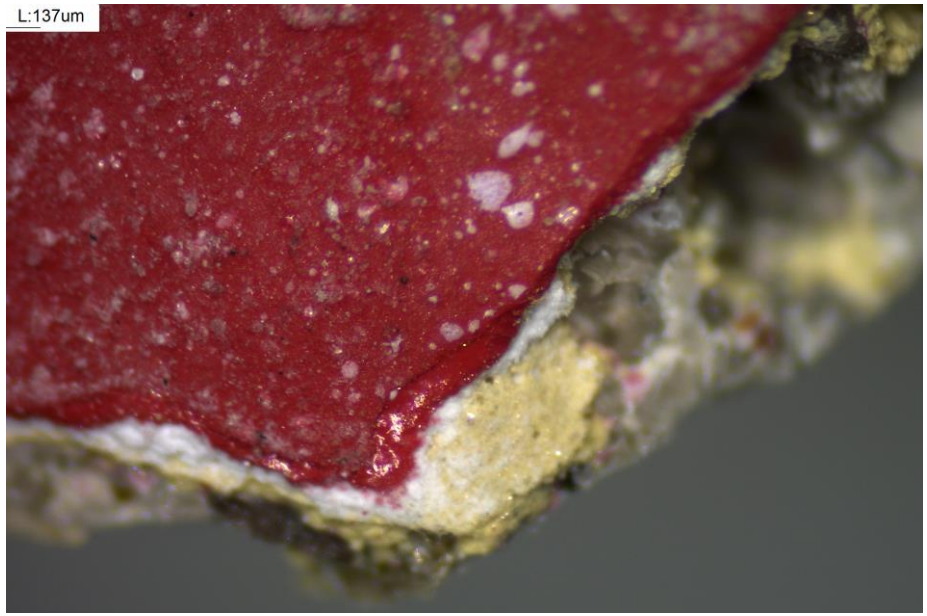


Fig. 12 " Niguarda Antifascista " – sample 6 - reflected Visible light - magnification 30 x

NUMBER OF PARTNER:	P3 Cesmar7, P4 An.t.a.res srl Unipersonale
TYPE OF WORK:	Mural painting
COUNTRY:	Italy
CITY:	Reggio Emilia
ADDRESS:	Via Selo , 2
OWNER / CUSTODIAN:	Cooperativa Case Operaie di Mancasale e Coviolo
ARTIST:	Gola Hundun
TITLE OF THE WORK:	LA GRANDE MADRE (The Big Mother) **ID:** OBJECT 2
YEAR OF EXECUTION:	2010
MATERIALS:	housepaint acrylic and Montana spray

	Name of the sample	**Original materials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**G1**	X		Raman Spectroscopy in situ	Rutile, Polycylic pigment, pthalocyanine (PB15:3?), Calcite?						
2	**G2**	X			Hostopen Violet, phtalocyanine						
3	**G3**	X			Rutile, Hostopen Violet, phtalocyanine						

4	**G4**	X			Hostopen Violet, Calcite, Carbazole dioxazine violet PV23?						
5	**G5**	X			Rutile, Calcite, Maybe a disazopigment, pyrazolone PO34?						
6	**G6**	X			phtalocyanine + Hostopen						

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

Points of measure for in situ Raman sp.:
G1 light blue
G2 blue
G3 blue
G4 dark violet
G5 white
G6 blue

Fig. 1 LA GRANDE MADRE (The Big Mother) – measurement points location

NUMBER OF PARTNER:	P3 Cesmar7, P4 An.t.a.res srl Unipersonale
TYPE OF WORK:	Mural painting
COUNTRY:	Italy
CITY:	Milan
ADDRESS:	Via Giulio Cesare Procaccini, 4
OWNER / CUSTODIAN:	Fabbrica del Vapore, Municipality of Milan
ARTIST:	Ivan, Nais, Orticanoodles, Pao
TITLE OF THE WORK:	Ubuntu (Mandela)
YEAR OF EXECUTION:	2014
MATERIALS:	Housepaint acrylic (Sikkens) and spray (Montana)

	Name of the sample	**Original materials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**1 M**	X								Stereomicroscopy	Stratigraphy: a.White-grey plaster b.Brown ground layer; c.Grey primer ; d.Black paint layer
2	**2 M**	X								Stereomicroscopy	Stratigraphy: a.Brown plaster of the support; b.White-grey plaster of the support;

											c.Light brown-grey ground layer; d.Grey primer; e.Thin black paint layer; f.White paint layer;
3	**3 M**	X								Stereomicroscopy	Stratigraphy: a.Brown plaster of the support; b.White-grey plaster of the support ; c.brown-grey ground layer; d. chromatically altered pink-brownish paint layer
4	**4 M**	X								Stereomicroscopy	Stratigraphy: a.White-grey plaster of the support; b. brown-grey ground layer; c.Grey primer; d.Red-brownish paint layer;
	5 M	X		μ- Raman Spectroscopy on the cross-section sample	Yellow azo pigment PY 74, Hostasol Green, Calcite	FTIR-ATR	a styrene modified alkyd resin (green) alkyd resin (yellow)	-			
6	**6 M**	X								Stereomicroscope	Stratigraphy:

											a.Plaster of the support ; b.Light brown-grey ground layer; c.Red paint layer;
7	**9 M**	X								Optical microscopy on the cross-section sample	stratigraphy: a.Plaster of the support ; b.Light brown-grey ground layer; c.Yellow paint layer (prime coating); d.Orange paint layer d.Very thin whitish patina
8	**10 M**	X								Optical microscopy on the cross-section sample	Stratigraphy: a.Plaster of the support ; b.Light brown-grey ground layer; c.Yellow paint layer (prime coating); d.Orange paint layer d.Very thin whitish patina

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

Sample 1 M was collected along a lacuna in a black area painted by brush (**fig.1**). Artist Ivan.
The study of the 1 sample has shown the following structure (**fig.2**):

j) White-grey plaster of the support at low quality;
k) Brown ground layer;
l) Grey paint layer (prime coating);
m) Black paint layer; the surface appears porous, scabrous and matt.

Sample 2 M was collected along a lacuna in a white area painted by spray (**fig.1**).
The study of the 2 sample has shown the following structure (**fig.3**):

a) Brown plaster of the support, fine particles;
b) White-grey plaster of the support at low quality;
c) Light brown-grey ground layer;
d) Grey paint layer (prime coating);
e) Thin black paint layer;
f) White paint layer; the surface appears porous due to spray technique, flat and matt.

Sample 3 M was collected along a lacuna in a brownish area painted by brush (**fig.1**).
The study of the 3 sample has shown the following structure (**fig.4**):

a) Brown plaster of the support, fine particles;
b) White-grey plaster of the support at low quality;
c) Light brown-grey ground layer;
d) Pink-brownish paint layer orange former; the surface appears matt, scabrous and grains belonging to the support have been observed.

Sample 4 M was collected along a lacuna in a brown-red area painted by brush (**fig.1**). Artist Ivan,
The study of the 4 sample has shown the following structure (**fig.5**):

a) White-grey plaster of the support at low quality;
b) Light brown-grey ground layer;
c) Grey paint layer (prime coating);
d) Red-brownish paint layer; the surface appears matt, scabrous and a sort of white patina has been observed.

Sample 5 M was collected along a lacuna in a green area spray painted (**fig.1**) by Nais.
The study of the 5 sample has shown the following structure and composition (**fig.6-8**):

a) Plaster of the support > 600 µm thick;
b) Light brown-grey ground layer, irregular thickness of about 200 µm;
c) White paint layer (prime coating) composed of Calcite from preliminary Raman data. Regular feature, irregular thickness, average thickness of 50 µm;
d) Yellow paint layer containing azo pigment PY74 and a binding medium quite similar to that found in the layer *e*. Regular feature, average thickness of 50 µm;
e) Green paint layer containing Hostasol Green and a styrene modified alkyd resin (to be confirmed) and Calcite. Regular feature, average thickness of 25 µm;
f) Traces of a yellow thin layer < 10µm thick.

Sample 6 M was collected along a lacuna in a chromatically altered red area spray paint (**fig.1**).
The study of the 6 sample has shown the following structure (**fig.9**):

a) Plaster of the support ;
b) Light brown-grey ground layer;
c) White paint layer (prime coating);
d) Red paint layer with porous surface, cracking, black particles and small white stains. Fading phenomenon has been observed on the top of the sample.

Sample 9 M was collected from a purple area (dark orange former) of Mandela's face applied by brush (**fig.1**).
The study of the 9 sample has shown the following structure (**fig.10**):

a) Plaster of the support ;
b) Light brown-grey ground layer;
c) Yellow paint layer (prime coating);
d) Orange paint layer
e) Very thin whitish patina that causes superficial purple and matt color. This paint layer has been addressed to Py-GC-MS.

Sample 10 M was collected from a purple paint layer applied by brush (dark orange former), covered with a very thin orange paint layer, of Mandela's face (**fig.1**).
The study of the 10 sample has shown the following structure (**fig.11-12**):

a) Plaster of the support > 500 µm thick;
b) Light brown-grey ground layer, irregular thickness up to 250 µm;
g) Yellow paint layer (prime coating). Regular feature, average thickness of 30 µm;
c) Orange paint layer. Irregular feature, average thickness of 50 µm;
d) Very thin (5 µm) grey-whitish layer (color less, a sort of patina) at regular thickness; this layer causes superficial purple and matt color.

“ Ubuntu (Mandela) ” – sample 1 M– after sampling

“ Ubuntu (Mandela) ” – sample 2 M– during sampling

“ Ubuntu (Mandela) ” – sample 3 M– during sampling

“ Ubuntu (Mandela) ” – sample 4 M– before sampling

“ Ubuntu (Mandela)” – sample 5 M– before sampling

“ Ubuntu (Mandela)” – sample 6 M– before sampling

“ Ubuntu (Mandela)” – sample 9 M e 10 M – points of sampling

“ Ubuntu (Mandela) ” side M sampling

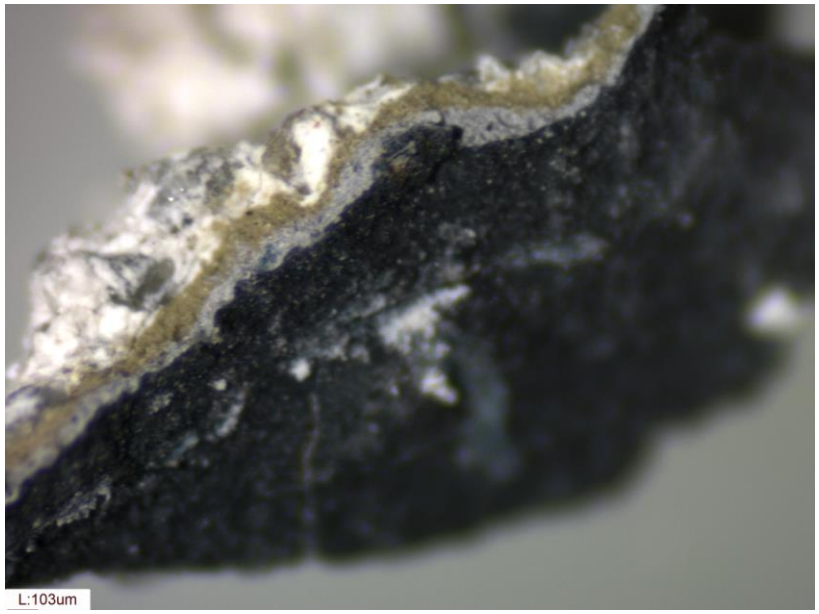


Fig.2 "Ubuntu" – sample 1 M– reflected Visible light –SM- magnification 40 x

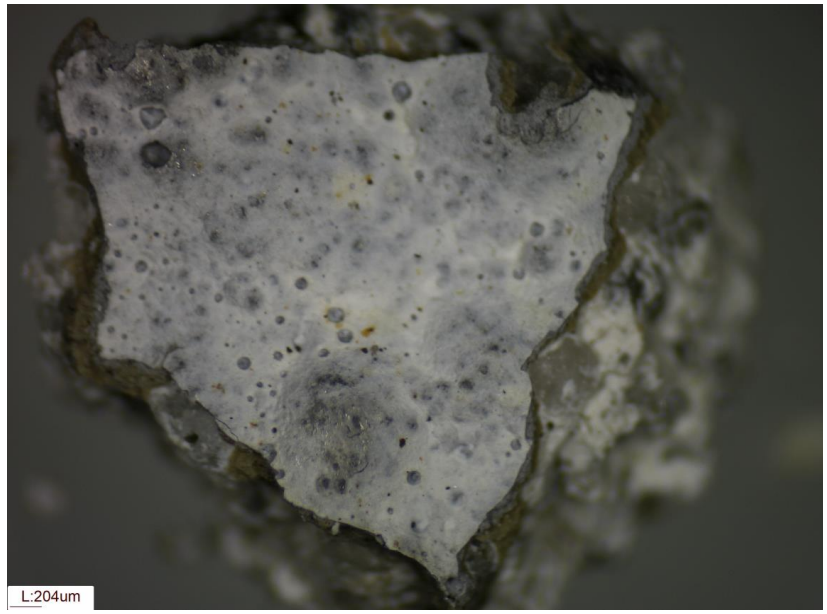


Fig.3 "Ubuntu" – sample 2 M – reflected Visible light –SM- magnification 20 x

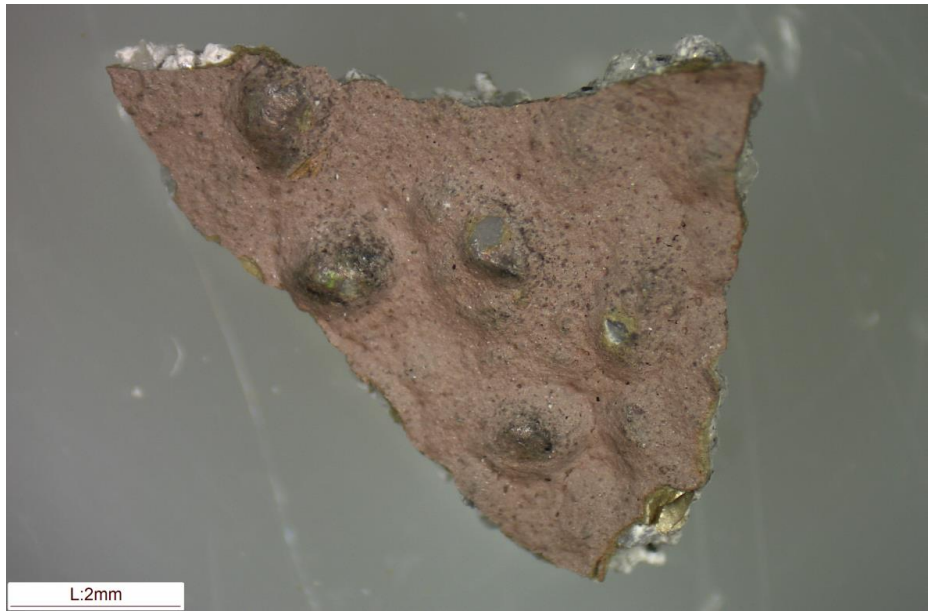


Fig.4 "Ubuntu" – sample 3 M – reflected Visible light –SM- magnification 10 x

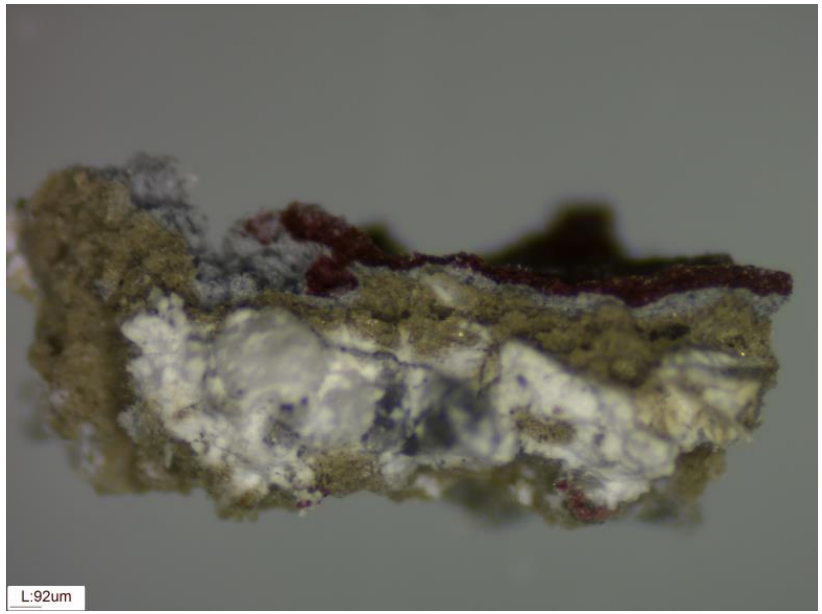


Fig.5 "Ubuntu" – sample 4 M – reflected Visible light –SM- magnification 40x (right, support)

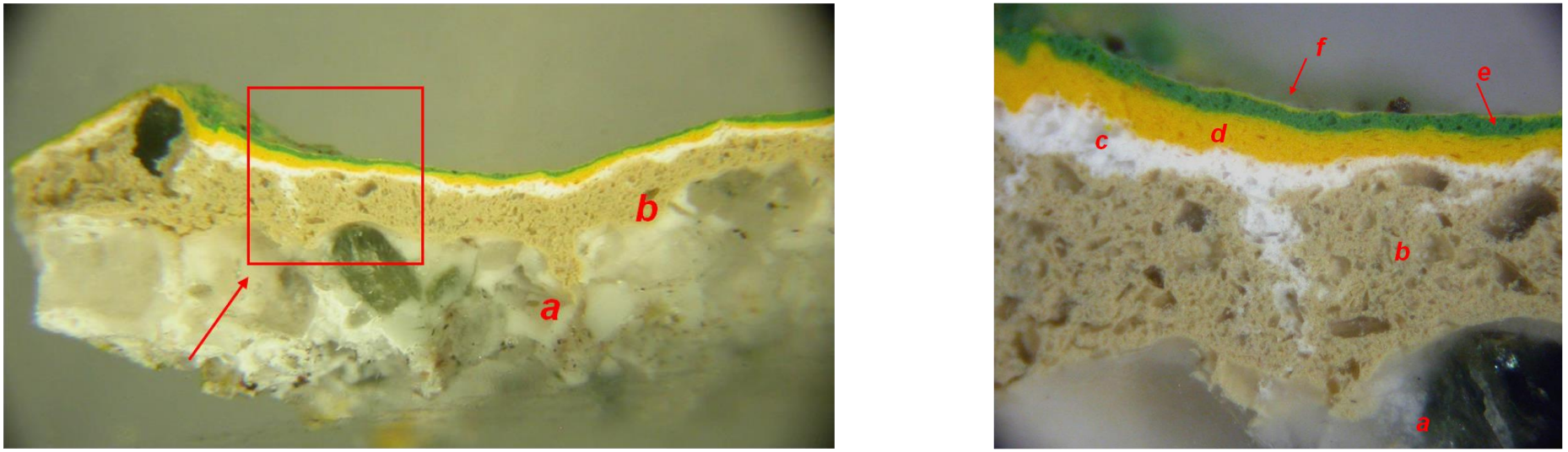


Fig.6 "Ubuntu" – sample 5M – cross section – reflected Visible light – magnification 40 x (left) and 180 x (right)

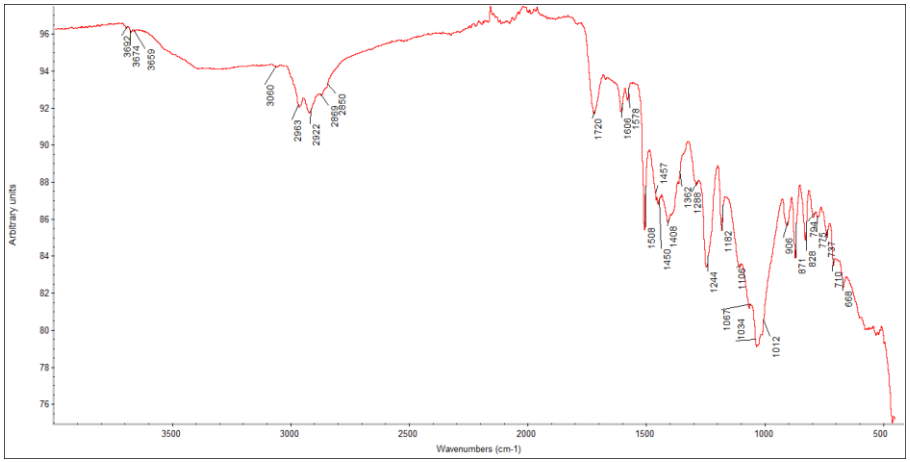


Fig. 7 "Ubuntu" – sample 5M – FTIR-ATR spectrum of the green surface

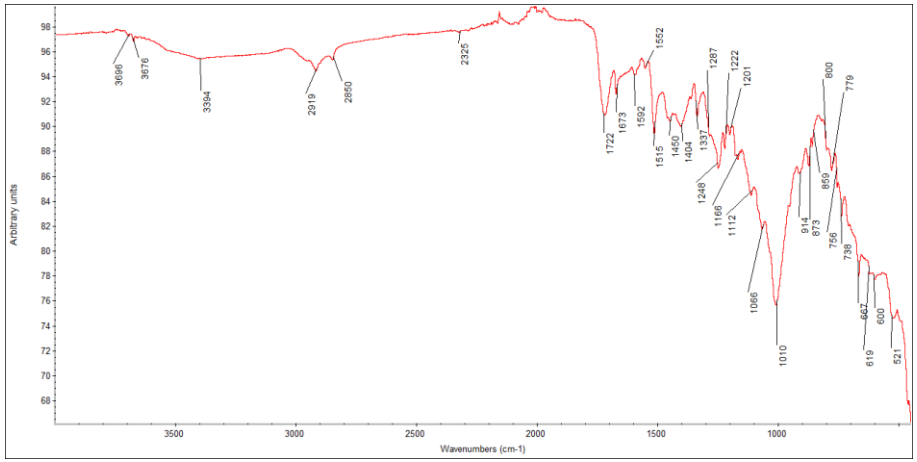


Fig. 8 "Ubuntu" – sample 5 M– FTIR-ATR spectrum of the yellow surface

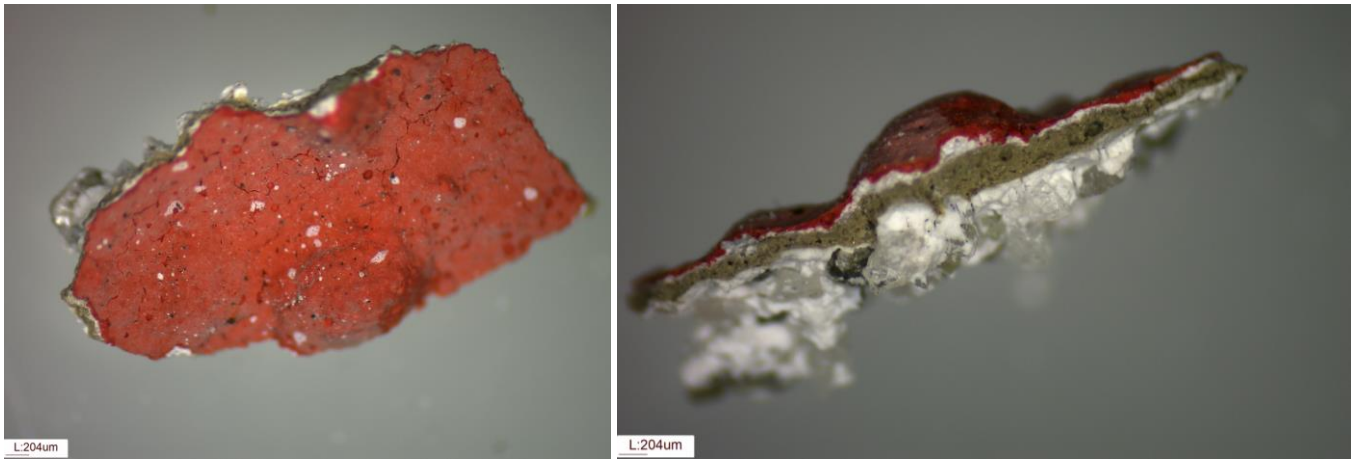


Fig.9 "Ubuntu" – sample 6 M – reflected Visible light –SM- magnification 20 x

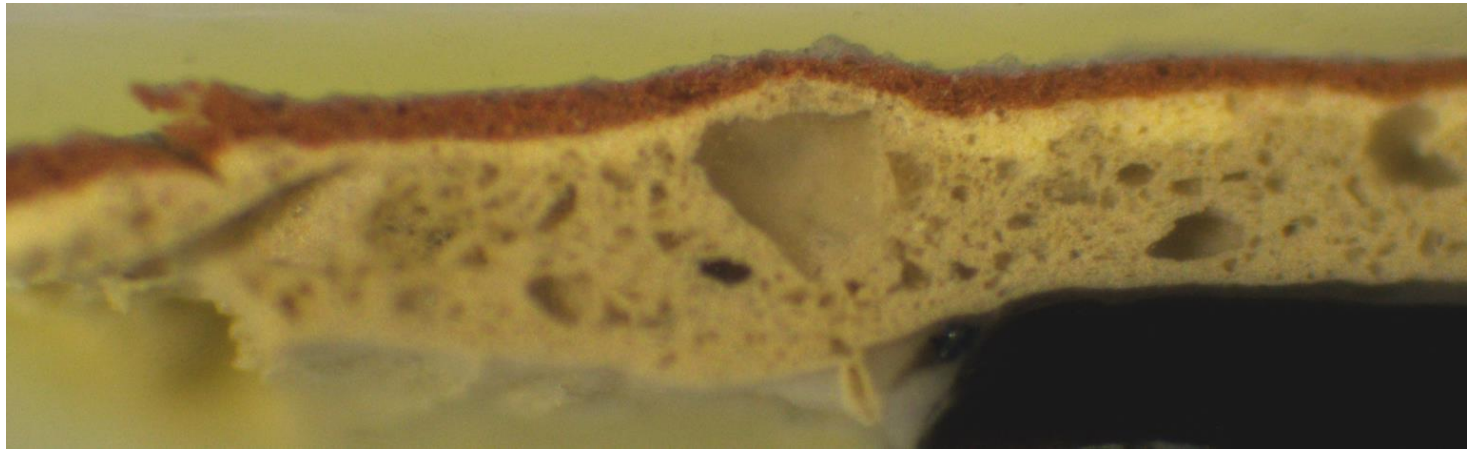


Fig.10 "Ubuntu" – sample 9 M – reflected Visible light –OM- magnification 100 x

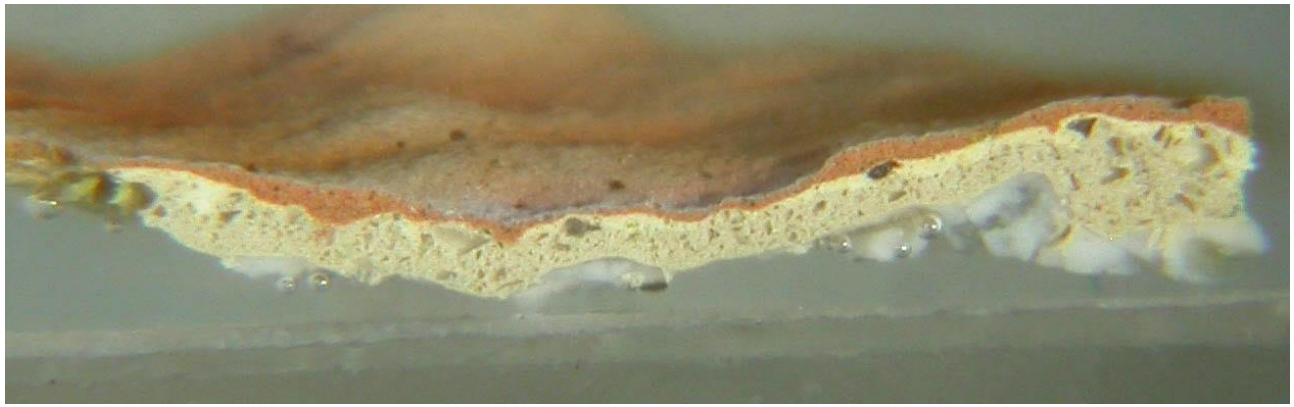


Fig.11 "Ubuntu" – sample 10 M – reflected Visible light –OM- magnification 40 x

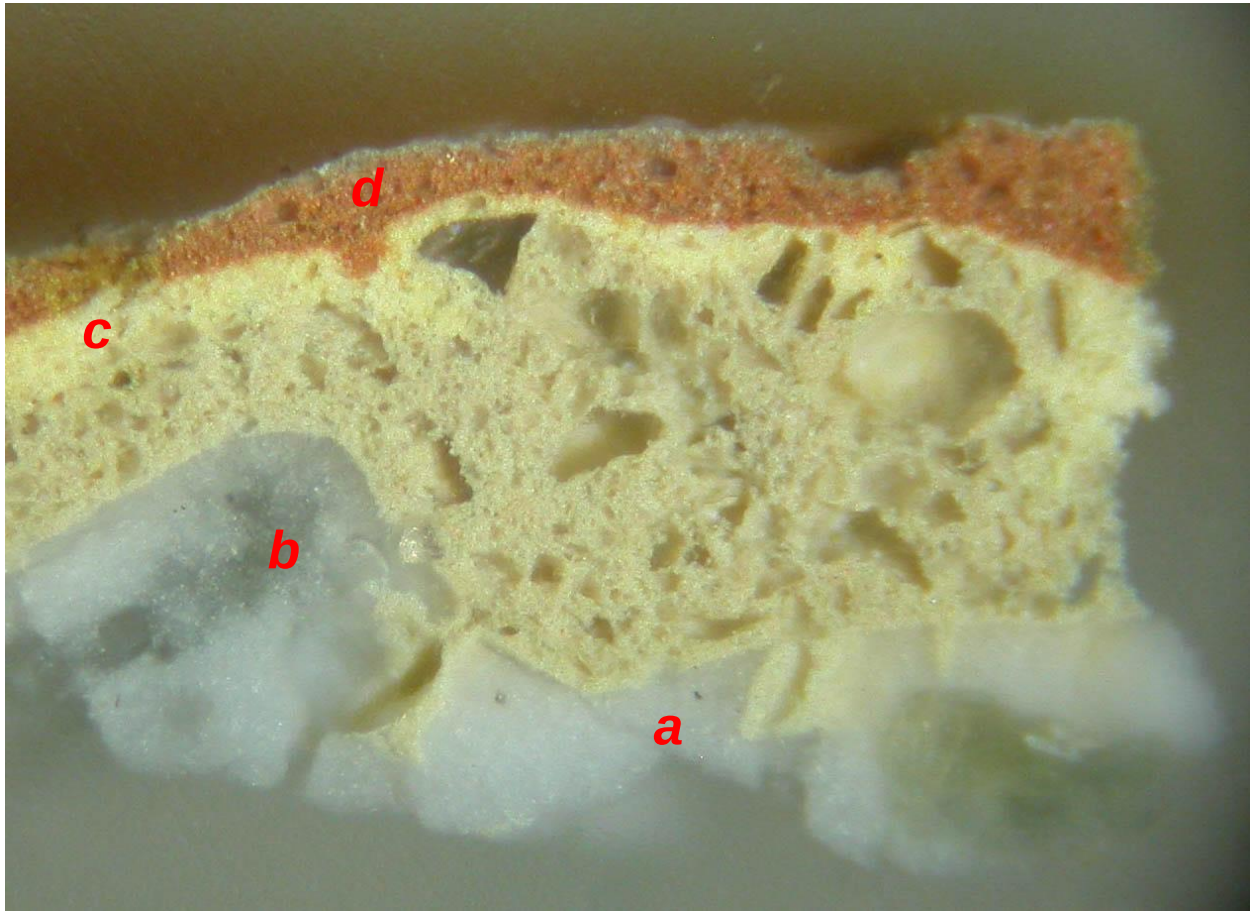


Fig.12 "Ubuntu" – sample 10 M – reflected Visible light –OM- magnification 170 x

NUMBER OF PARTNER:	P3 Cesmar7, P4 An.t.a.res srl Unipersonale
TYPE OF WORK:	Mural painting
COUNTRY:	Italy
CITY:	Milan
ADDRESS:	Via Giulio Cesare Procaccini, 4
OWNER / CUSTODIAN:	Fabbrica del Vapore, Municipality of Milan
ARTIST:	Ivan, Nais, Orticanoodles, Pao
TITLE OF THE WORK:	Omaggio a Kahled al Asaad
YEAR OF EXECUTION:	2016
MATERIALS:	Housepaint acrylic (Sikkens) and spray (Montana)

	Name of the sample	**Original materials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**1 K**	X								Stereomicroscopy	Stratigraphy: a.Plaster of the support; b.Light brown-grey ground layer; c.Yellow primer; d.Bordeaux-dark violet paint layer e.Thick pink paint layer; f.Bordeaux-dark violet paint layer

2	**2 K**	X								Stereomicroscopy	Stratigraphy: a.Plaster of the support; b.Light brown-grey ground layer; c.Yellow primer; d.Yellow paint layer ;
3	**3 K**	X								Stereomicroscopy	Stratigraphy: a.Plaster of the support; b.Thin light brown-grey ground layer; c.Yellow primer; d.Bicolor grey paint layer with crack and lacuna
4	**4 K**	X								Stereomicroscope	Stratigraphy: a.Plaster of the support; b.Light brown-grey ground layer; c.Yellow paint layer (prime coating); d.Matt pink-brownish paint layer with crack.

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

Sample 1 K was collected from a bordeaux paint layer applied by brush (**fig.1**) along an outline.
The study of the 1K sample has shown the following structure (**fig.2**):

- *a)* Plaster of the support;
- *b)* Light brown-grey ground layer;
- *h)* Yellow paint layer (prime coating);
- *c)* Bordeaux-dark violet paint layer;
- *d)* Thick pink paint layer;
- *e)* Bordeaux-dark violet, gloss and not porous, paint layer with superficial white stains. It seems the same *g* layer.

Sample 2 K was collected from a yellow paint layer applied by spray (**fig.1**).
The study of the 2K sample has shown the following structure (**fig.3**):

- *a)* Plaster of the support;
- *b)* Light brown-grey ground layer;
- *c)* Yellow paint layer (prime coating);
- *d)* Yellow paint layer with crack and other dark particles.

Sample 3 K was collected from a grey dark/light paint layer maybe applied by brush (**fig.1**).
The study of the 3K sample has shown the following structure (**fig.4**):

- *a)* Plaster of the support;
- *b)* Thin light brown-grey ground layer;
- *c)* Yellow paint layer (prime coating);
- *d)* Bicolor grey paint layer with crack and lacunae.

Sample 4 K was collected from a brown paint layer (**fig.1**).
The study of the 4K sample has shown the following structure (**fig.5**):

- *a)* Plaster of the support;
- *b)* Light brown-grey ground layer;
- *c)* Yellow paint layer (prime coating);
- *d)* Matt pink-brownish paint layer with crack.

Fig. 1" Omaggio a Kahled al Asaad " side K sampling

Fig.2 "Ubuntu" – sample 1 K – reflected Visible light –SM- magnification 20x (left) and 45 x (right)

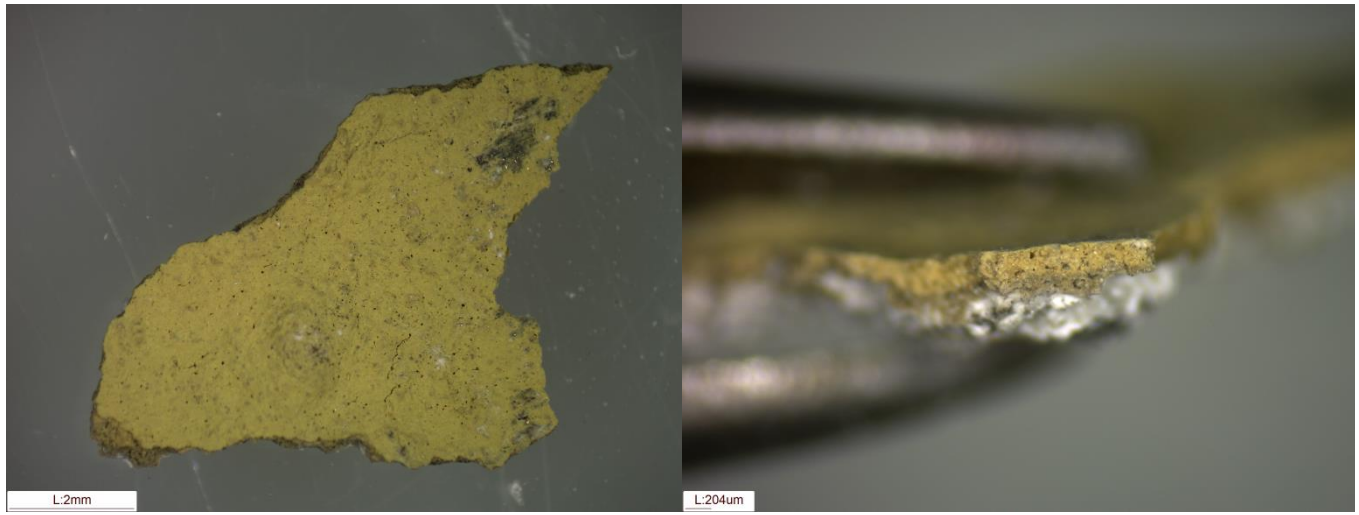


Fig.3 "Ubuntu" – sample 2 K – reflected Visible light –SM- magnification 10x (left) and 20 x (right)

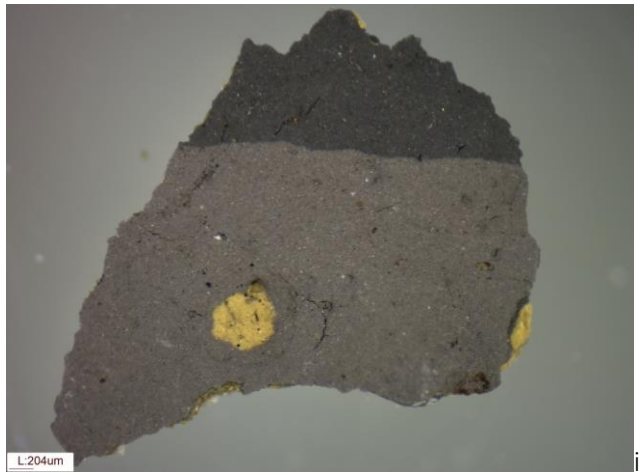


Fig.4 "Ubuntu" – sample 3 K – reflected Visible light –SM- magnification 20x

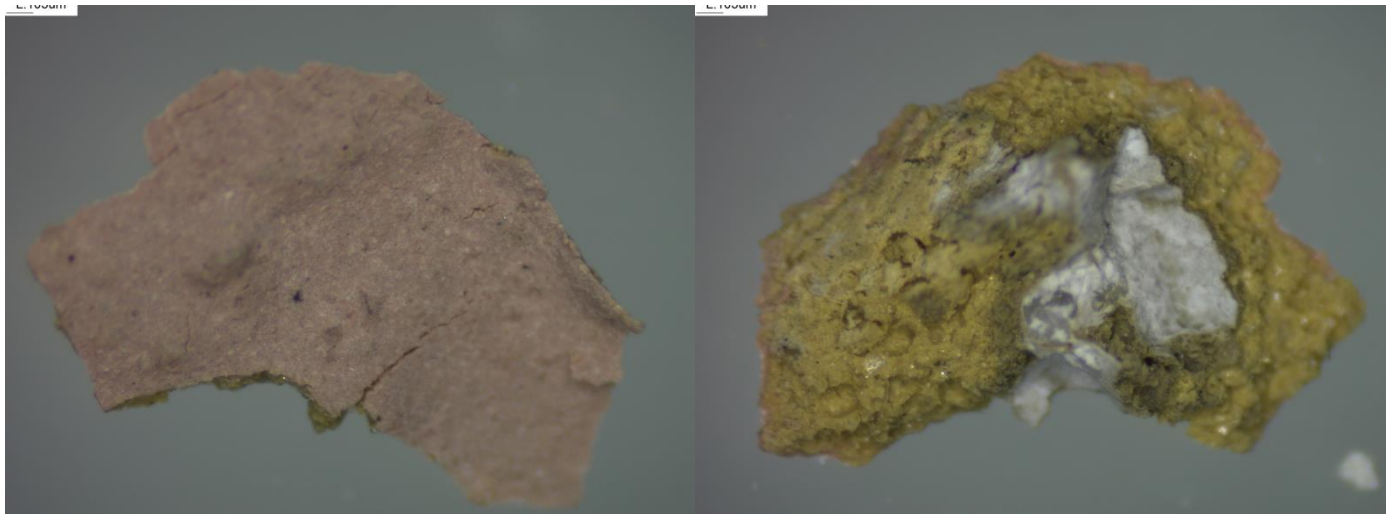


Fig.5 “Ubuntu” – sample 4 K – reflected Visible light –SM- magnification 40x

VIGO

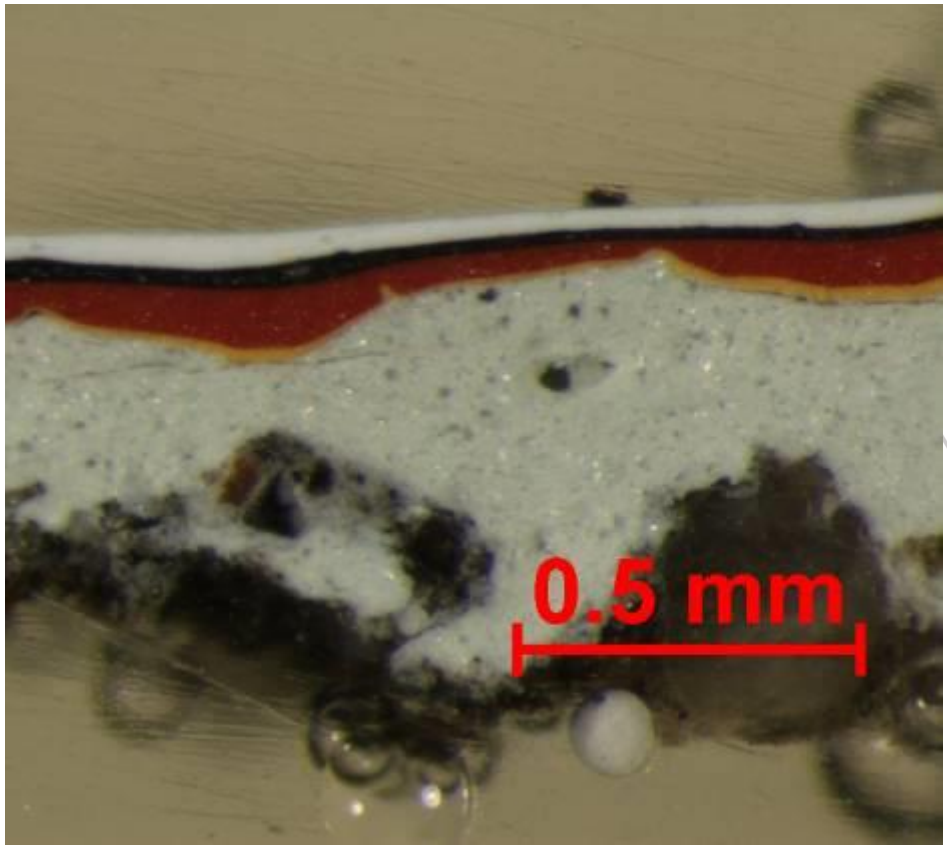
NUMBER OF PARTNER:	P15
TYPE OF WORK:	MURAL PAINTING
COUNTRY:	SPAIN
CITY:	VIGO
ADDRESS:	RUA DOUTOR CARLOS COLMEIRO LAFORET
OWNER / CUSTODIAN:	UNKNOWN
ARTIST:	LIQEN
TITLE OF THE WORK:	ENTARAÑA
YEAR OF EXECUTION:	2008
MATERIALS:	Acrylic and spray paints on reinforced concrete and brick wall plastered with cement mortar

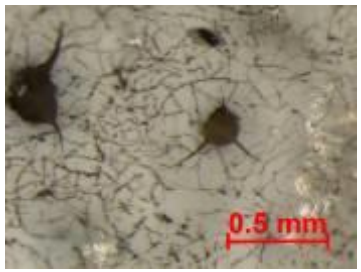
	Name of the sample	description	Original materials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
					Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	LI-B1	Fresh white paint	yes		FTIR/DRX/SEM	Organic	FTIR/SEM	Acrylic. TiO2 as extender				
2	LI-B2	Deteriorated white paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic. Reduction on Ti content			Optic and SEM	Highly colonized by microscopic fungi and algae
3	LI-BCB	Deteriorated white paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic. Reduction on Ti content			Optic and SEM	Highly colonized by microscopic fungi and algae
4	LI-BCR	Deteriorated white paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic. Reductio			Optic and SEM	Highly colonized by

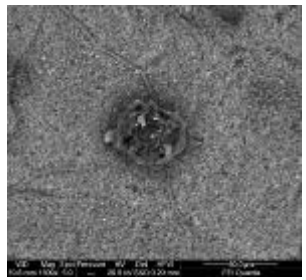
								n on Ti content				microscopic fungi and algae
5	LI-GP	Deteriorated grey paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic. Talc as extender			Optic and SEM	Highly colonized by microscopic fungi and algae
6	LI-G1	Fresh grey paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic. Talc as extender				
7	LI-G2	Fresh grey paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	pending				
8	LI-N	Black paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic. Talc as extender				
9	LI-S	Flaking	yes			organic			FTIR/DRX/SEM	Poor quality cement High biological colonizatio n		
10	LI-F	Fissure	yes			organic			FTIR/DRX/SEM			
11	LI-AM	Fresh yellow paint	yes		FTIR/DRX/SEM	organic Ni and Ti	FTIR/SEM	Acrylic. Sb as stabilizer				
12	LI-AZ	Fresh blue paint	yes		FTIR/DRX/SEM	Organic, Cu and S	FTIR/SEM	Acrylic.			Optic and SEM	Diatom.
13	LI-R	Red on lips	non		FTIR/DRX/SEM	organic	FTIR/SEM	pending				

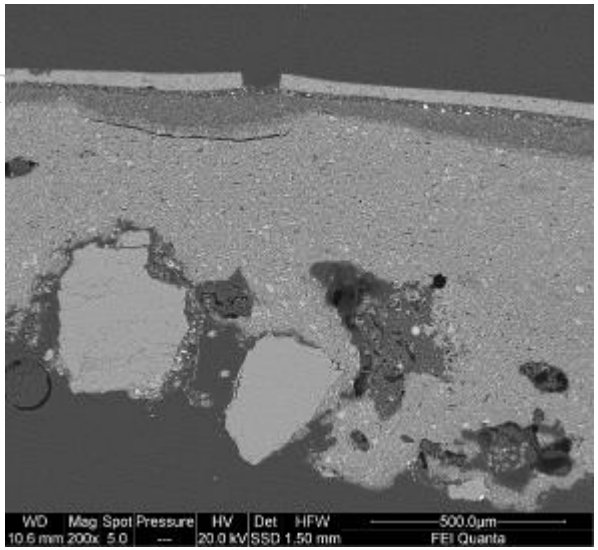
*** mortars, stone, metal ect.**

**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

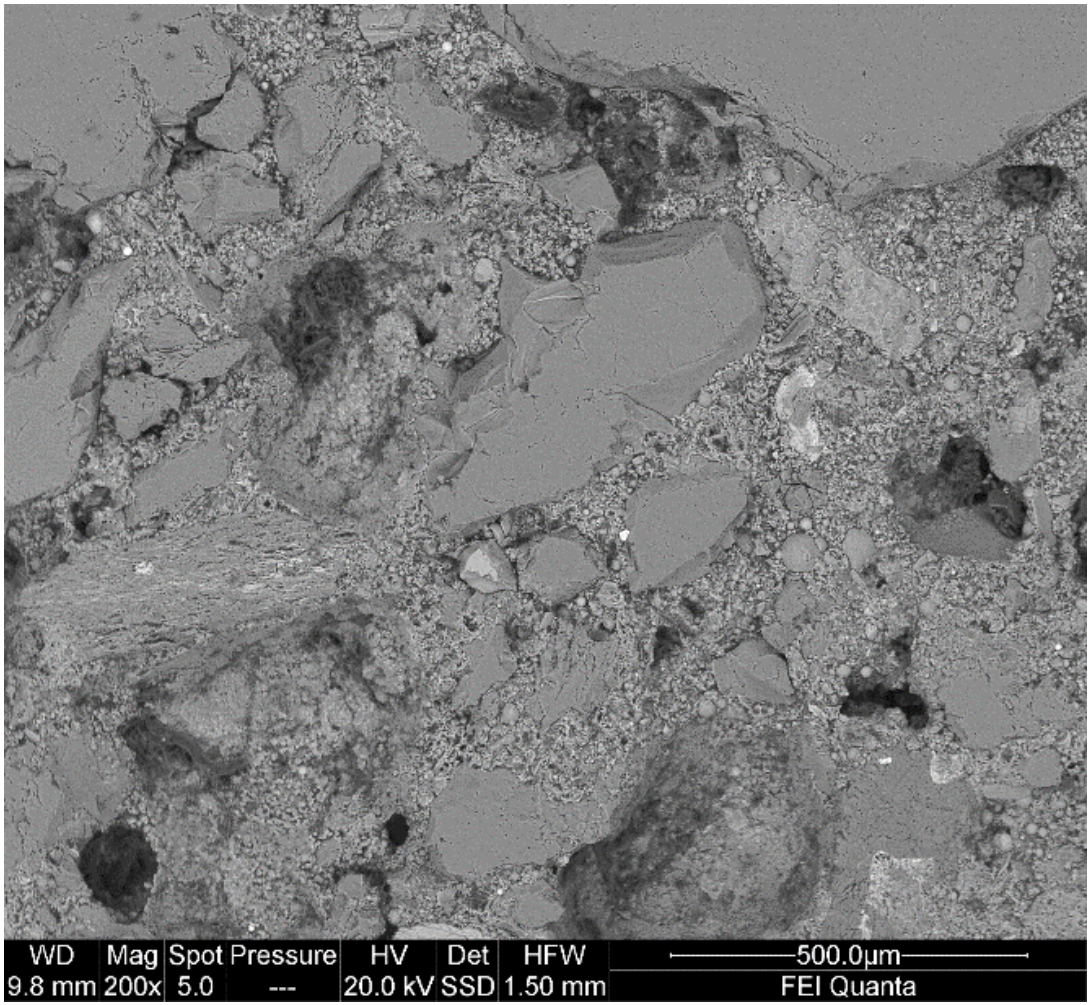








Cracks and voids affecting the paints are due to biological colonization. This colonization does not grow on the paint but is already present on the substrate; the paint layer did not affect organisms growth and them continued to grow, affecting the integrity of the paint layer.



The cement based mortar is of poor quality: high porosity, low adhesivity, high salt content and highly decohesioned.

NUMBER OF PARTNER:	**P15**
TYPE OF WORK:	MURAL PAINTING
COUNTRY:	SPAIN
CITY:	ORDES
ADDRESS:	RUA VALADO (Football court)
OWNER / CUSTODIAN:	ORDES MUNICIPALITY
ARTIST:	NoveNoel
TITLE OF THE WORK:	ESCARABAJO PELOTERO
YEAR OF EXECUTION:	2012
MATERIALS:	Acrylic paint on reinforced concrete wall

	Name of the sample	**description**	**Original materials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
					Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	V-R1	Faded red paint	yes		FTIR/DRX/SEM	Organic	FTIR/SEM	Acrylic			Pending deterioration mechanism analyses	
2	N-R2	Faded red paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic				
3	N-V	Faded green paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic				

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

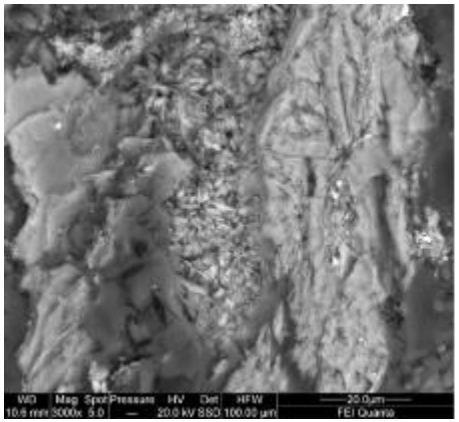
NUMBER OF PARTNER:	**P15**
TYPE OF WORK:	MURAL PAINTING
COUNTRY:	SPAIN
CITY:	ORDES
ADDRESS:	RUA FONTE DO REGO DA FRAGA S/N
OWNER / CUSTODIAN:	ORDES MUNICIPALITY
LEGAL PROTECTION:	INEXISTENT
ARTIST:	SOKRAM
TITLE OF THE WORK:	PECADO ORIGINAL
YEAR OF EXECUTION:	2012
MATERIALS:	Acrylic paint on brick wall plastered with cement based mortar, wood and metal

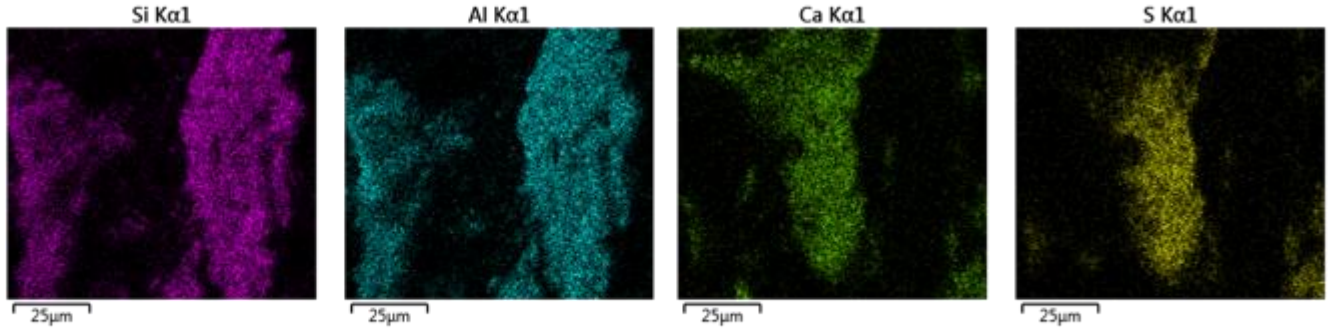
	Name of the sample	**description**	**Original materials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
					Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	SO-V1	Green, red and black paint (snake tongue)	yes		FTIR/DRX/SEM	Organic. Cl in green paint, Fe and Ti in red paint, C in black paint. Gypsum effloress cences	FTIR/SEM	Acrylic				

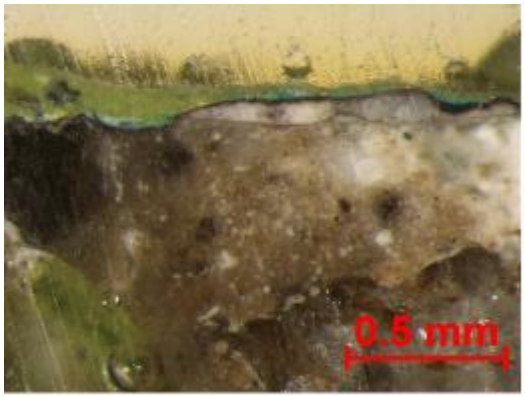
2	SO-V2	Intense green paint (snake shadow)	yes		FTIR/DRX/SEM	Organic. Cu in paint. Gypsum effloress cences. Less Ti content	FTIR/SEM	Acrylic				
3	SO-V3	Green paint (on metal)	yes		FTIR/DRX/SEM	Organic. Metal highly corrode d	FTIR/SEM	Acrylic				
4	SO-S1A	Coating mortar	yes		FTIR/DRX/SEM	Organic			SEM	Mortar of poor quality. Fluvial or marine aggregate.		
5	SO-S1B	Coating mortar	yes		FTIR/DRX/SEM	organic			SEM	Mortar of poor quality. Fluvial or marine aggregate.		
6	SO-S2B	Coating mortar with green and yellow paints	yes		FTIR/DRX/SEM	organic			SEM	Mortar of poor quality. Fluvial or marine aggregate.		
7	SO-SV1	Sand disaggregatio n	yes		FTIR/DRX/SEM	organic					DRX AND SALT EXTRACTION	CALCITE, GYPSUM

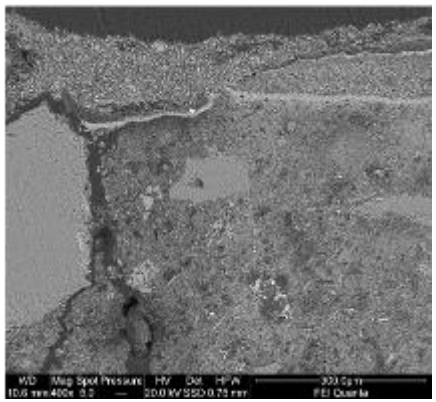
8	SO-SV2	Sand disaggregation	yes		FTIR/DRX/SEM	organic					DRX AND SALT EXTRACTION	CALCITE, GYPSUM
9	SO-S3	Sand desaggregation on mortar	yes			organic					DRX AND SALT EXTRACTION	CALCITE, GYPSUM

*** mortars, stone, metal etc.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**









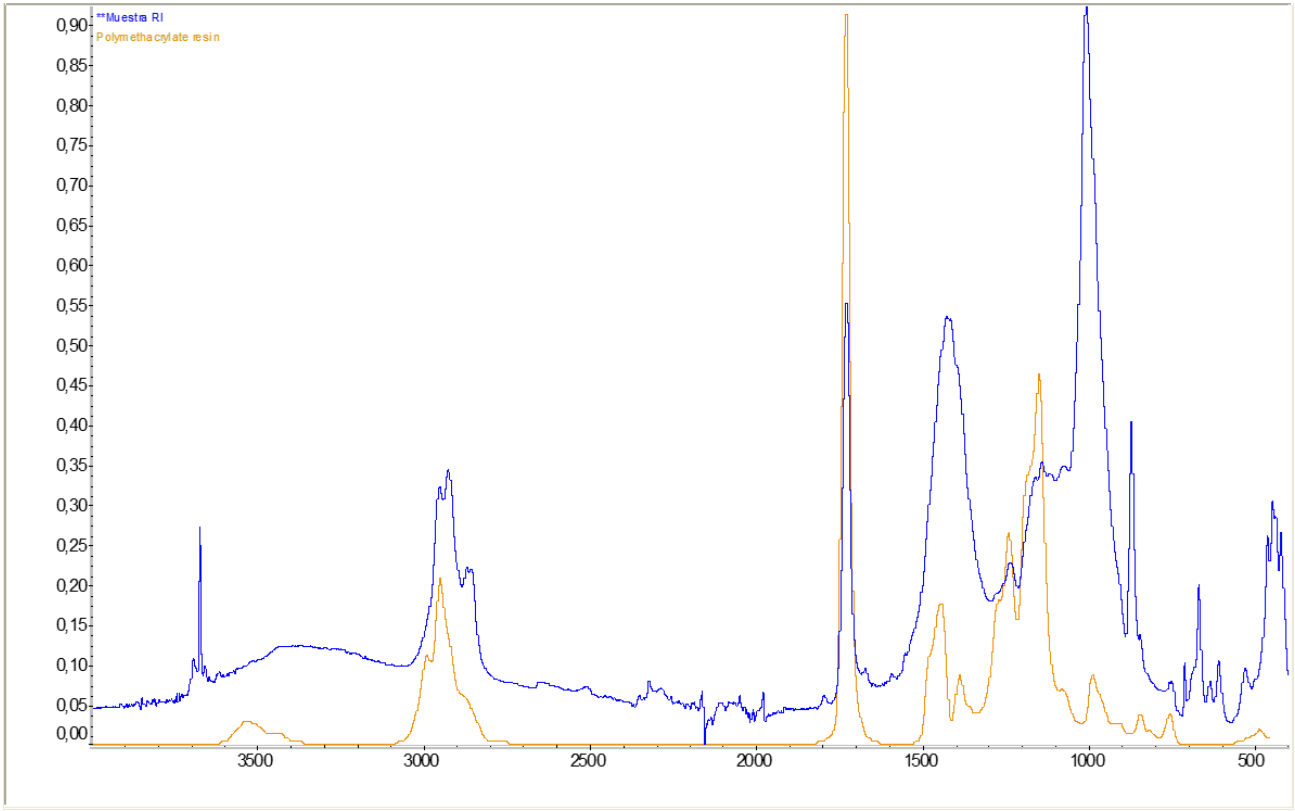
By SEM-EDX, gypsum crystallization in the paint layer is confirmed. Lining mortar is of poor quality, with fractures and voids and also with soluble salts.

NUMBER OF PARTNER:	**P15**
TYPE OF WORK:	MURAL PAINTING
COUNTRY:	SPAIN
CITY:	ORDES
ADDRESS:	RUA VALADO (Football courts)
OWNER / CUSTODIAN:	ORDES MUNICIPALITY
LEGAL PROTECTION:	INEXISTENT
ARTIST:	SPOK
TITLE OF THE WORK:	MINERO GALLEGO DE PADRE ASTURIANO
YEAR OF EXECUTION:	2015
MATERIALS:	Acrylic paint on reinforced concrete wall

	Name of the sample	**description**	**Original materials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
					Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	SP-R1	Faded red-orange paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic. TiO2 as extender				
2	SP-R2	Faded red orange paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic. TiO2 as extende				
3	SP-V	Green paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic. TiO2 as extende				
4	SP-A	Yellow paint	yes		FTIR/DRX/SEM	organic	FTIR/SEM	Acrylic. TiO2 as extende				
5	SP-S1	Concrete with paint layer	yes						SEM/DRX	Portland cement and silicated		

										aggregates. Ettringite.		
6	SP-S2	Concrete with paint layer	yes						SEM/DRX	Portland cement and silicated aggregates. Ettringite.		

*** mortars, stone, metal etc.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**



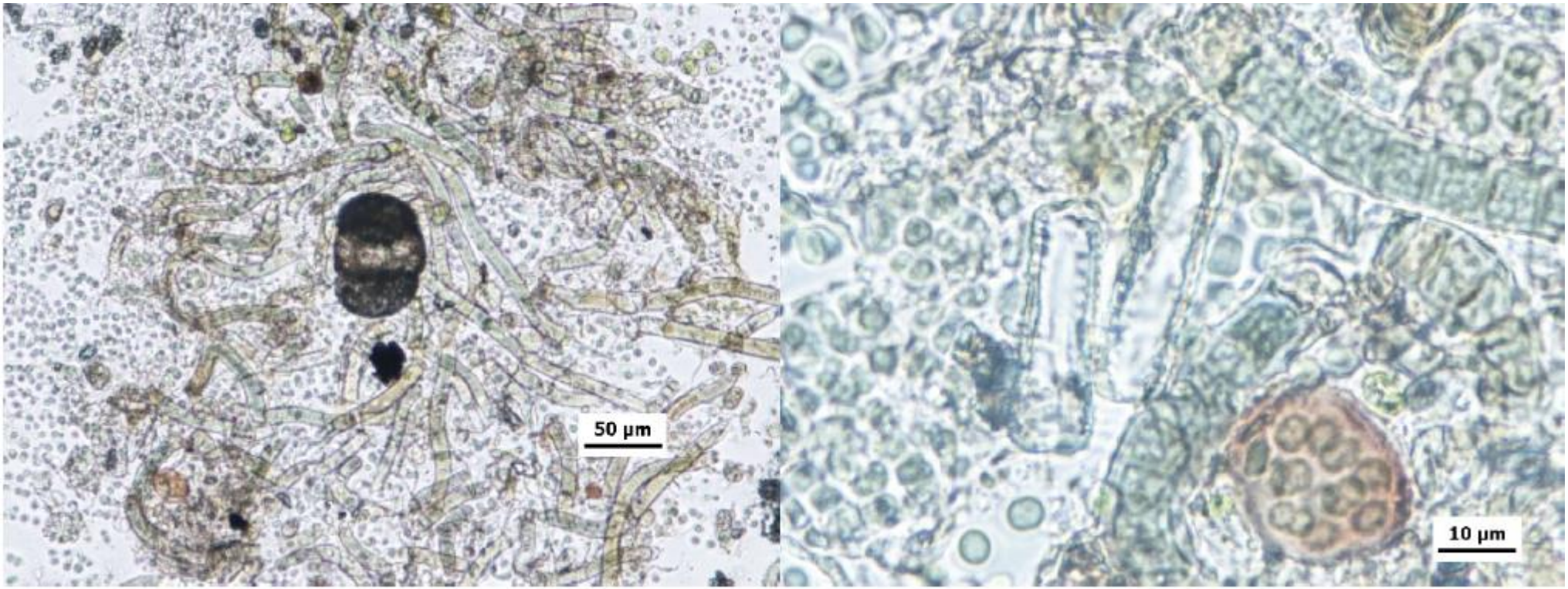
By FTIR, the acrylic nature of the paints is confirmed. ,

NUMBER OF PARTNER:	**P15**
TYPE OF WORK:	MURAL PAINTING
COUNTRY:	SPAIN
CITY:	PONTEVEDRA
ADDRESS:	RUA PEDREIRA
OWNER / CUSTODIAN:	UNKNOWN
LEGAL PROTECTION:	INEXISTENT
ARTIST:	DELIO
TITLE OF THE WORK:	O LOBO
YEAR OF EXECUTION:	209
MATERIALS:	Acrylic on a wall made on concrete bricks

	Name of the sample	**description**	**Original materials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
					Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	DE-N	BLACK PAINT	yes		FTIR/DRX/SEM	pending	FTIR/SEM	pending				
2	DE-NCS	BLACK PAINT WITH BIOLOGICAL COLONIZATION	yes								Organisms identification (optic microscopy)	Collema sp (lichen), Lepraria sp (lichen) and microscopic fungi Scytonema, Gleocapsa and Nostoc (cyanobacteria)
3	DE-NCI	BLACK PAINT WITH BIOLOGICAL COLONIZATION	yes								Organisms identification (optic microscopy)	Candelariella sp (lichen) with green algae

4	DE-A	YELLOW PAINT	yes		FTIR/DRX/SEM	pending	FTIR/SEM	pending				
5	DE-ACS	YELLOW PAINT WITH BIOLOGICAL COLINIZATION	yes								Organisms identification (optic microscopy)	
6	DE-ACI	YELLOW PAINT WITH BIOLOGICAL COLINIZATION	yes								Organisms identification (optic microscopy)	
7	DE-S	CONCRETE BRICK							DRX/SEM	PORTLAND CEMENT WITH CARBONATE AGGREGATE		

*** mortars, stone, metal etc.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**



Micrographs taken under optic microscopy of the sample DE-NCS. On the left, in the center of the micrograph, there is a dark structure, which is a pollen grain of a gymnosperm mixed with cyanobacteria and some, but very few, green algae. On the right, there are diatoms (in the center) mixed with cyanobacteria: Scytonema are the filaments, those that are grouped into a brown-red wall could be Gloeocapsa and the rest could be Nostoc.

ACADEMY OF FINE ARTS IN WARSAW

NUMBER OF PARTNER:	**P7**
TYPE OF WORK:	**mural**
COUNTRY:	**POLAND**
CITY:	**Warsaw**
ADDRESS:	**Stalowa 37 Street**
OWNER / CUSTODIAN:	**ZGN Praga Północ (Skarb Państwa - eng. Treasury)**
ARTIST:	**Linas Domarackas with Prague (Warsaw's district) children and Remus Theater Association**
TITLE OF THE WORK:	**Szczudlarze (eng. Stilt Walkers)**
YEAR OF EXECUTION:	**2008**
MATERIALS:	**acrylic painting on a plaster on a brick wall**

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**Mortar**							SEM – EDS, microchemical reaction	lime mortar		
2	**Secondary mortar**							SEM – EDS, microchemical reaction	lime mortar or lime and cement mortar with quartz filler; charcoal black	XDR analyzis recommeneded	

2	**White from intermediate layer**			SEM – EDS, microchemical reaction	titanium white; dolomite;	FTIR - ATR	vinyl resin				
3	**Blue from the human figure**			SEM – EDS, microchemical reaction	phtalocyanine blue	FTIR - ATR	acrylic resin				
4	**Violet from stripes**			SEM – EDS, microchemical reaction	titanium white; calcium carbonate; organic violet	FTIR - ATR	acrylic resin				
5	**Orange from stripes**			SEM – EDS, microchemical reaction	titanium white; organic orange	FTIR - ATR	vinyl resin				
6.	**Black from the graffitti**			SEM – EDS, microchemical reaction	organic black (soot)						

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example**

NUMBER OF PARTNER:	**P7**
TYPE OF WORK:	**mural**
COUNTRY:	**POLAND**
CITY:	**Warsaw**
ADDRESS:	**Grzybowska 79 Street**
OWNER / CUSTODIAN:	**The Warsaw Rising Museum**
ARTIST:	**Agata Bogacka**
TITLE OF THE WORK:	**The Wall Art in Rose Garden**
YEAR OF EXECUTION:	**2012**
MATERIALS:	
DIMENSIONS (cm):	**300 x 125**

	Name of the sample	**Pigments / dyes**		**Organic binders**		**Type of mortars**		**Additional analyzes**
		Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	
1	mortar					XRD, microchemical reaction	lime mortar with quartz filler	
2	white layer	SEM – EDS, microchemical reaction	titanium white, calcium carbonate, aluminosilicates	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	acrylic resin			

NUMBER OF PARTNER:	**P7**
TYPE OF WORK:	**mural**
COUNTRY:	**POLAND**
CITY:	**Warsaw**
ADDRESS:	**Grzybowska 79 Street**
OWNER / CUSTODIAN:	**The Warsaw Rising Museum**
ARTIST:	**Tatjana Utz**
TITLE OF THE WORK:	**The Wall Art in Rose Garden**
YEAR OF EXECUTION:	**2008**
MATERIALS:	
DIMENSIONS (cm):	**300 x 125**

	Name of the sample	**Pigments / dyes**		**Organic binders**		**Type of mortars**		**Additional analyzes**
		Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	
1	green layer	SEM – EDS, microchemical reaction, Raman Spectroscopy	barium white, synthetic organic yellow, phtalocyanine blue PB15, silicates	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	two different acrylic resin are present in original paint layer and in the retouch			
2	red layer	SEM – EDS, microchemical reaction	synthetic organic red, titanium white, aluminosilicates – probably kaolin	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	acrylic resin			

NUMBER OF PARTNER:	**P7**
TYPE OF WORK:	**mural**
COUNTRY:	**POLAND**
CITY:	**Warsaw**
ADDRESS:	**Grzybowska 79 Street**
OWNER / CUSTODIAN:	**The Warsaw Rising Museum**
ARTIST:	**Rafał Roskowiński**
TITLE OF THE WORK:	**The Wall Art in Rose Garden**
YEAR OF EXECUTION:	**2006**
MATERIALS:	
DIMENSIONS (cm):	**300 x 125**

	Name of the sample	**Pigments / dyes**		**Organic binders**		**Type of mortars**		**Additional analyzes**
		Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	
1	red/pink layer	SEM – EDS, microchemical reaction	synthetic organic red (monoazo), titanium white, silicates	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	acrylic resin			
2	white - spray	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	kaolin	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	acrylic resin			

NUMBER OF PARTNER:	**P7**
TYPE OF WORK:	**mural**
COUNTRY:	**POLAND**
CITY:	**Warsaw**
ADDRESS:	**Grzybowska 79 Street**
OWNER / CUSTODIAN:	**The Warsaw Rising Museum**
ARTIST:	**Galeria Rusz**
TITLE OF THE WORK:	**The Wall Art in Rose Garden**
YEAR OF EXECUTION:	**2006**
MATERIALS:	
DIMENSIONS (cm):	**300 x 125**

	Name of the sample	**Pigments / dyes**		**Organic binders**		**Type of mortars**		**Additional analyzes**
		Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	
1	black layer	SEM – EDS, microchemical reaction	black iron oxide, titanium white, calcium carbonate, aluminosilicates	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	polyester resin			
2	yellow layer	SEM – EDS, microchemical reaction	iron yellow – raw sienna, calcium carbonate, titanium white,	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	polyester resin			

			possible presence of organic yellow, aluminosilicates					

NUMBER OF PARTNER:	**P7**
TYPE OF WORK:	**mural**
COUNTRY:	**POLAND**
CITY:	**Warsaw**
ADDRESS:	**Grzybowska 79 Street**
OWNER / CUSTODIAN:	**The Warsaw Rising Museum**
ARTIST:	**Przemek "Trust" Truściński**
TITLE OF THE WORK:	**The Wall Art in Rose Garden**
YEAR OF EXECUTION:	**2006**
MATERIALS:	
DIMENSIONS (cm):	**300 x 125**

	Name of the sample	**Pigments / dyes**		**Organic binders**		**Type of mortars**		**Additional analyzes**
		Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	
1	black layer	SEM – EDS, microchemical reaction	black iron oxide, titanium white, aluminosilicates	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	acrylic resin			
2	red layer	SEM – EDS, microchemical reaction	organic red (containing Br), dolomite, aluminosilicates	Fourier Transform Infrared Spectroscopy –	mixture of acrylic and phthalic resin			

				Attenuated Total Reflectance (FTIR-ATR)				

NUMBER OF PARTNER:	**P7**
TYPE OF WORK:	**mural**
COUNTRY:	**POLAND**
CITY:	**Warsaw**
ADDRESS:	**Grzybowska 79 Street**
OWNER / CUSTODIAN:	**The Warsaw Rising Museum**
ARTIST:	**Dominik Jałowiński**
TITLE OF THE WORK:	**The Wall Art in Rose Garden**
YEAR OF EXECUTION:	**2008**
MATERIALS:	
DIMENSIONS (cm):	**300 x 125**

	Name of the sample	**Pigments / dyes**		**Organic binders**		**Type of mortars**		**Additional analyzes**
		Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	
1	red layer	SEM – EDS, microchemical reaction	synthetic organic red, dolomite, silicates	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	poly(vinyl acetate)			
2	black layer	SEM – EDS, microchemical reaction	black iron oxide, dolomite,	Fourier Transform Infrared	acrylic resin			

			small addition of barium white or/and titanium white, silicates	Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)				
3	blue layer	SEM – EDS, microchemical reaction, Raman Spectroscopy	ultramarine blue, calcium carbonate, aluminosilicates	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	too small amount of organic binder to identify			

NUMBER OF PARTNER:	**P7**
TYPE OF WORK:	**mural**
COUNTRY:	**POLAND**
CITY:	**Warsaw**
ADDRESS:	**Grzybowska 79 Street**
OWNER / CUSTODIAN:	**The Warsaw Rising Museum**
ARTIST:	**Michał Frydrych**
TITLE OF THE WORK:	**The Wall Art in Rose Garden**
YEAR OF EXECUTION:	**2008**
MATERIALS:	
DIMENSIONS (cm):	**300 x 125**

	Name of the sample	**Pigments / dyes**		**Organic binders**		**Type of mortars**		**Additional analyzes**
		Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	
1	blue layer	SEM – EDS, microchemical reaction, Raman Spectroscopy	phtalocyanine blue PB15, titanium white, aluminosilicates	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	acrylic resin			
2	black layer	SEM – EDS, microchemical reaction,	carbon black - soot, calcium carbonate,	Fourier Transform Infrared Spectroscopy – Attenuated Total	acrylic resin			

		Raman Spectroscopy	small amount of titanium white, aluminosilicates	Reflectance (FTIR-ATR)				
3	red layer	SEM – EDS, microchemical reaction	synthetic organic red (monoazo, containing Cl), calcium carbonate, titanium white, aluminosilicates	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	acrylic resin			

NUMBER OF PARTNER:	**P7**
TYPE OF WORK:	**mural**
COUNTRY:	**POLAND**
CITY:	**Warsaw**
ADDRESS:	**Grzybowska 79 Street**
OWNER / CUSTODIAN:	**The Warsaw Rising Museum**
ARTIST:	**Mikołaj Chylak**
TITLE OF THE WORK:	**The Wall Art in Rose Garden**
YEAR OF EXECUTION:	**2008**
MATERIALS:	
DIMENSIONS (cm):	**300 x 125**

	Name of the sample	**Pigments / dyes**		**Organic binders**		**Type of mortars**		**Additional analyzes**
		Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	
1	fabric			Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	acrylic glue			microchemical reaction: bast fiber - linen or hemp
2	blue layer	SEM – EDS, microchemical reaction,	ultramarine blue, titanium white, aluminosilicates	Fourier Transform Infrared Spectroscopy – Attenuated Total	acrylic resin			

		Raman Spectroscopy		Reflectance (FTIR-ATR)				
3	red layer	SEM – EDS, microchemical reaction	synthetic organic red (monoazo), calcium carbonate, titanium white, aluminosilicates	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	acrylic resin			
4	glue			Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	poly(vinyl acetate)			
5	black layer	SEM – EDS, microchemical reaction, Raman Spectroscopy	iron brown – burnt sienna(?), carbon black - soot, barium white, dolomite, calcium fluoride, aluminosilicates	Fourier Transform Infrared Spectroscopy – Attenuated Total Reflectance (FTIR-ATR)	acrylic resin			

Gradski muzej Sisak/Sisak Municipal Museum

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Intersection of Andrije Hebranga street anad Capraška street
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Ratko Petrić
TITLE OF THE WORK:	Užarena planeta / Incandescent Planet
YEAR OF EXECUTION:	1975.
MATERIALS:	Steel, plastics, glass fibre reinforced plastics, rubber (copper?)

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**36/1**	X		Optical microscopy , FT-IR, SEM/EDS	2. Grey over coat - calcium carbonate, titanium white, magnesium carbonate (dolomite) and alkyd resin.	FT-IR	2. Grey over coat - alkyd resin. 3. White over coat - alkyd resin is present as binder.				

					3. White over coat - titanium white, silicon and aluminium. FTIR shows alkyd resin is present as binder.						
2	**36/3**	X		Optical microscopy , Micro FT-IR, SEM/EDS	2. Grey particles on the surface containing aluminium, silicon, sulphur and calcium.	Micro FT-IR	1. Blue layer - alkyd resin and possibly poly(dimethyilsiloxane).				
2	**36/5**	X		Optical microscopy , FT-IR, SEM/EDS	1. Transparent plastic with incrustations containing aluminium and silicon.						
3	**36/6**	X						FT-IR	- alkyd resin		
4	**36/9**	X						SEM/EDS	- organic (plastic)		
5	**36/10**	X						FT-IR	- alkyd resin		
6.	**36/11**	X						SEM/EDS	- iron oxide		
7.	**36/12**	X						FT-IR	- iron oxide, silicate minerals and alkyd resin. - The peak at 1383 cm-1 is		

									attributable to nitrates vibrational frequencies .		
8.	**36/13**	X		Optical microscopy , FT-IR, SEM/EDS	1. Semi-trasparent layer - plastics (layer too thin for microFTIR anaylsis). 2. Layer - iron, silicon, copper, aluminium, titanium, phosphorous and sulphur. 3. Semi-trasparent - polymethacrilates.						
9.	**36/15**	X						SEM/EDS	- metallic particles made of copper and admixtures of the base and over coats (titanium oxide, barium sulphate) as well as other		

									contaminants most probably deposited from the environment.		
10.	**36/16**	X						FT-IR	- alkyd resin and magnesium carbonate.		
11.	**36/17**		X							Microbiological analysis	- bigger yellow lichen with and black fungal conidial chains - green algae (Chlorophyta, most probably genus Chlorococcum, Chlorella or Trebouxia), round shaped. - Alternaria - mycelia sterilia

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Marijana Cvetkovića, by the road going from main entrance of ex Sisak Ironworks towards city center
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Josip Diminić
TITLE OF THE WORK:	Objekt I /Object I
YEAR OF EXECUTION:	1979.
MATERIALS:	Painted steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**5/1 (coatings – cross section)**	X		Optical microscopy , SEM/EDS	1. Ground layer: minium 2. White ground layer: barite, chalk 3. Red paint layer: iron red, barium sulphate, silicates,possibly minium and chrome red.	Micro FT-IR	1. Ground layer: an organic binder. 2. White ground layer: alkyd binder. 3. Red paint layer: alkyd binder				

					4: Red paint layer: organic pigment 5. Red paint layer: minium, chrome red, titanium white, most probably barite		4: Red paint layer: organic binder 5. Red paint layer: alkyd binder				
2	**5/2 (coatings – cross section)**	X		Optical microscopy , SEM/EDS	1. Ground layer: minium 2. Ground white layer: barium sulphate, chalk, zinc white, silicates 3. Second white ground: chalk, titanium white and zinc white 4. Red paint layer: barite, chalk, titanium white and iron leading to the conclusion that red ochre is also present.	Micro FT-IR	1. Ground layer: an organic binder 2. Ground white layer: alkyd binder 3. Second white ground: alkyd binder 4. Red paint layer: alkyd binder				
2	**5/3 (coatings – cross section)**	X		Optical microscopy , SEM/EDS	1. Ground layer: minium 2. Ground white layer: barite, chalk, zinc white, silicates	Micro FT-IR	1. Ground layer: an organic binder 2. Ground white layer: alkyd binder				

					3. Second white ground: chalk, titanium white and zinc white 4. Paint red layer: barium sulphate, most probably chalk, titanium white and iron leading to the conclusion that red ochre is present and that unidentified organic red pigment could also be present 5. Blue paint layer: titanium white and Prussian blue		3. Second white ground: no peaks assignable to organic binders has been detected 4. Paint red layer: alkyd binder 5. Blue paint layer: alkyd binder				
3	**5/7 (corrosion products)**	X						SEM/EDS	- mainly iron oxides; silicates are also present		
4	**5/8 (corrosion products)**	X						FT-IR	- iron oxide		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Trg hrvatske državnosti
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Hamo Čavrk
TITLE OF THE WORK:	Forma I / Form I
YEAR OF EXECUTION:	1982.
MATERIALS:	Painted (zinc plated?) steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**25/1 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	1. Red base coat - chalk and in a minor part, barite. 2. Grey/black over coat - most probably an organic	Micro FT-IR	1. alkyd resin 3. alkyd resin 4. organic binder				

					black pigment. 3. White over coat - zinc white 4. Orange layer - most probably iron oxide (corrosion products).						
2	**25/2 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	1. Red base coat - chalk, silicates mineral and titanium white. 2. Grey/black over coat- missing in most of the sample examined. 3. White over coat - zinc white 4. Orange layer - most		1. Red base coat - alkyd resin 2. Grey/black over coat- missing in most of the sample examined. 4. Orange layer - organic binder Obtained micro FTIR spectra of the layers are affected				

					probably iron oxide (corrosion products). Obtained micro FTIR spectra of the layers are affected by signals of nearby areas.		by signals of nearby areas.				
2	**25/5 (corrosion products)**	x						SEM/EDS	- iron oxide - In all the analysed points zinc is present suggesting the support is zinc plated steel. The other detected elements are partially present in the coatings and partially due to deposition from the environment. The relatively high amount		

									of phosphorous and the FTIR analysis suggest the presence of phosphate in the sample.		
3	**25/6 (corrosion products)**	x						SEM/EDS	- iron oxide. - The relatively high concentration of carbon in several points, as well as the structure of the analysed sample surface, suggest that an protecting (transparent) layer could have been applied.		
4	**25/7 (corrosion products)**	x						FT-IR	- alkyd resin and silicate minerals. - The peak at 1036 cm-1 is attributable to phosphates.		

5	**25/8 (corrosion products)**	x						FT-IR	The peaks in the spectrum are attributable to nitrates and silicate minerals.		
6.	**25/9 (microbiological)**		x							Microbiological analysis	- green algae (Chlorophyta, first column) and black fungal conidia - Some insect remains are also visible on the received scrapings. -Trichoderma - Rhizoctonia contaminated with Trichoderma sp. - Fusarium - Penicillium

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Intersection between Marijana Cvetkovića and Braće Kavurića Street, in front of main enterance to ex Sisak Ironworks
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Ivan Kožarić
TITLE OF THE WORK:	Antipodi / Antipodes
YEAR OF EXECUTION:	1972.
MATERIALS:	Painted steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**15/1 (coatings)**	X		Optical microscopy , SEM/EDS	1. Support (steel) and base coat - barite, titanium white and silicates 2. White base coat - barite,	Micro FTIR	2. White base coat - alkyd binder 3. Red base coat - alkyd binder. 4. White base coat - alkyd binder				

					titanium white 3. Red base coat - barite, minium, red ochre and alkyd binder. 4. White base coat - barite and titanium white 5. Red base coat – barite and red ochre 6. White topcoat - titanium white		5. Red base coat - alkyd binder 6. White topcoat - alkyd binder				
2	**15/2 (coatings**	X		Optical microscopy , SEM/EDS	2. Red/orange base coat - containing barite, red ochre 3. Red over coat - most probably a red organic pigment. Red ochre	Micro FTIR	2. Red/orange base coat - alkyd binder 3. Red over coat - alkyd binder 4. Orange over coat - alkyd binder				

					could also be present. 4. Orange over coat - red ochre, barite and minium 5. Red/orange over coat - red ochre. 6. Orange over coat - red ochre. It probably contains also minium but as a minor part.		5. Red/orange over coat - alkyd binder 6. Orange over coat - alkyd binder				
2	**15/5 (corrosion products)**	X						SEM/EDS	- iron oxide formed as globular nodules; Silicates are also present. Aluminium, silicon and sulphur suggest that other contaminants are also present.		

3	**15/6 (corrosion products)**	X						FT-IR	- iron oxide; Peaks attributable to alkyd binder are also present (2925, 2854, 1735, 1211 cm-1).		
4	**15/7 (microbiological)**		x							Microbiological analysis	- green algae (Chlorophyta, most probably genus Chlorococcum, Chlorella or Trebouxia); -round shaped and black fungal hyphae/conidia - Alternaria - Chaetomium - Fusarium - Rhizoctonia - mycelia sterilia - Bacterial growth was also observed in mixed culture.

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Hrvatskog narodnog preporoda street, in front of kindergarten
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Ratko Petrić
TITLE OF THE WORK:	Čovjek stroj / Man-Machine
YEAR OF EXECUTION:	1975.
MATERIALS:	Painted steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**32/1 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	2. White over coat - titanium white, calcium and magnesium carbonate 3. Grey over coat - titanium white, iron and phosphorous.	Micro FT-IR	2. White over coat - alkyd resin.				

					The layer is too thin to obtain a spectrum via micro FTIR.						
2	**32/3 (corrosion products)**	x						SEM/EDS	- Iron oxide is the main corrosion product.		
2	**32/4 (corrosion products)**	x				FT-IR	- alkyd resin	FT-IR	-iron oxide, silicate minerals - The peak at 1384 cm-1 is attributable to nitrates vibrational frequencies. - Peaks attributable to calcium oxalate are also visible in the spectrum.		
3	**32/5 (plastic elements)**							FTIR - (Py-GC/MS)	- unsaturated polyester resins cured with styrene. - unsaturated polyester resin cured with styrene. In particular, the polyester component was probably		

									obtained by reacting phthalic anhydride, maleic anhydride and propylene glycol (i.e. 1,2-propandiol).		
4	**32/6 (plastic elements)**							FTIR - (Py-GC/MS)	- unsaturated polyester resins cured with styrene. - Traces of kaolin have been detected. - The result is very similar to that of sample 32_5. All the main pyrolysis fragments identified are compatible with the presence of an unsaturated polyester resin cured with styrene.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Hrvatskog narodnog preporoda street, in front of Post office
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Zlatko Zlatić
TITLE OF THE WORK:	Zgurić i obitelj / Zgurić and Family
YEAR OF EXECUTION:	1978.
MATERIALS:	Painted (zinc plated?) steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**28/1 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	2. Base coat - aluminium metal flakes.	Micro FT-IR	2. Base coat - alkyd binder (resin)				
2	**28/2 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	- the layer is consisting of alkyd binder (resin) and aluminium metal flakes	Micro FT-IR	- the layer is consisting of alkyd binder (resin) and aluminium metal flakes				

2	**28/3 (corrosion products)**	x						Optical microscopy , SEM/EDS	- zinc, the corrosion contains oxygen, aluminium and carbon as well as other contaminants (C, Si, Fe, P and K) probably due to deposition from the environment. The relatively high amount of phosphorous and the FTIR analysis suggest the presence of phosphate in the sample.		
3	**28/7 (corrosion products)**	x						SEM/EDS	- iron oxide; - In all the analysed points zinc is present suggesting the support contains zinc (zinc plated steel). The		

									other detected elements are partially present in the coatings and partially due to deposition from the environment.		
4	**28/8 (corossion products)**	x						FT-IR	- alkyd resin and silicate minerals. - The peak at 1036 cm-1 is attributable to phosphates and the one at 1386 cm-1 to nitrates vibrational frequencies.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	storage
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Andre Mohorovičić
TITLE OF THE WORK:	Ornament / Ornament
YEAR OF EXECUTION:	1984.
MATERIALS:	Painted steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**37/1 (coatings)**	x		Optical microscopy , FT-IR, SEM/EDS	1. Red base coat - calcium carbonate, red ochre and alkyd resin. 2. Brown over coat - barium sulphate, alkyd resin and an inorganic brown pigment	FT-IR	1. Red base coat - alkyd resin. 2. Brown over coat - alkyd resin				

					(silicates).The layer is detached in two layer indicating it was most probably applied in two hands						
2	**37/2 (coatings)**	x		Optical microscopy , FT-IR, SEM/EDS	1. Red base coat - red ochre, calcium carbonate 2. Red over coat - calcium carbonate, titanium white 3. Reddish top coat - showing same composition as layer 2 (too thin for analysis via micro FTIR).	FT-IR	1. Red base coat - alkyd resin. 2. Red over coat - alkyd resin. 3. Reddish top coat - showing same composition as layer 2 (too thin for analysis via micro FTIR).				
2	**37/5 (corrosion products)**	x						SEM/EDS	iron oxide		
3	**37/6 (corrosion products)**	x						FT-IR	- iron oxide, - silicate minerals and alkyd resin - The peak at 1384 cm-		

									1 is attributable to nitrates vibrational frequencies.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Kneza Branimira 40
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Mila Kumbatović
TITLE OF THE WORK:	Fontana / Fountain
YEAR OF EXECUTION:	1975.
MATERIALS:	Steel, copper alloy, paint

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**35/1 (coatings)**	x		Optical microscopy , SEM/EDS	2. Grey/black over coat - calcium carbonate, titanium oxide, magnesium 3. White over coat - mainly titanium white	Optical microscopy , SEM/EDS	2. Grey/black over coat - most probably an organic binder. 3. White over coat - an organic binder (most				

							probably alkyd resin).				
2	**35/3 (corrosion products)**	x						SEM/EDS	- iron oxide		
2	**35/4 (corrosion products)**	x				FT-IR	- alkyd resin	FT-IR	- silicate minerals and calcium carbonate. - The peak at 1386 cm-1 is attributable to nitrates.		
3	**35/5 (corrosion products)**	x						FT-IR	- silicate minerals. - The peak at 1384 cm-1 is attributable to nitrates vibrational frequencies		
4	**35/6 (corrosion products)**	x						SEM/EDS	- iron oxide. - The presence of lead could be referring to a possible base protective		

									coat of minium.		

*** mortars, stone, metal ect.**

**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Trg hrvatske državnosti
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Dora Kovačević
TITLE OF THE WORK:	Zid / Wall
YEAR OF EXECUTION:	1985.
MATERIALS:	Painted steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**22/1 (coatings)**	X		Micro FT-IR, Optical microscopy , SEM/EDS	1. Red base coat - alkyds, chalk and red ochre most probably Original base coat possibly missing. 2. Black top coat - barite, chalk and alkyd	Micro FT-IR	1. Red base coat – alkyds 2. Black top coat - alkyd binder				

					binder. It was not possible to achieve a good micro FTIR spectrum of the layer.						
2	**22/2 (coatings)**	X		FT-IR, Optical microscopy , SEM/EDS	- red base coat contains mostly chalk, red ochre and titanium oxide. Black top coat consists in barite, possibly zinc oxide and silicates. - barite, chalk and nitrates - Weak peaks attributable to quartz are also present.	FT-IR	- Both layers contain alkyds. - alkyds				
2	**22/3 (coatings)**	X		FT-IR	- barite, chalk and nitrates are assignable. -Weak peaks attributable to quartz are also present.	FT-IR	- alkyds				
3	**22/4 (coatings)**	X		FT-IR	- barite, chalk and nitrates are assignable. - Weak peaks attributable to	FT-IR	- alkyds				

					quartz are also present.						
4	**22/5 (corrosion products)**	X						SEM/EDS	- iron oxides		
5	**22/5 (corrosion products)**	x						FT-IR	- water - iron oxide, nitrates and silicates are also visible.		
6.											

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Otokara Keršovanija street, ex Metaling production halls, by the buildings on the left of the main entrance
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Zlatko Zlatić
TITLE OF THE WORK:	Slučajan oblik s tezom / Random Form With a Thesis
YEAR OF EXECUTION:	1978.
MATERIALS:	Zinc plated painted steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**20/1 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	2. Base coat - aluminium metal flakes.	Micro FT-IR	2. Base coat - alkyd binder (resin)				
2	**20/3 (corrosion products)**	x						SEM/EDS	- zinc and oxygen. -Sodium, aluminium, sulphur and iron are also present.		

2	**20/4 (corrosion products)**	x				FT-IR	alkyds	FT-IR	- mineral glaucocerinite Zn1-xAlx)(OH)2(SO4)x/2 · nH2O (1116 and 534 cm-1) which could have been formed as a corrosion product of the zinc metal support.		
3	**20/5 (microbiological)**		x							Microbiological analysis	- green algae (Chlorophyta, most probably genus Chlorococcum, Chlorella or Trebouxia) - round shaped and black fungal conidia and white hyphal growth - Fusarium - Phoma - Trichoderma sp. - Fusarium sp. -Colletotrichum - Alternaria sp. - Rhizoctonia - Trichoderma - Rhizoctonia sp. - Oomycota

											- Stemphylium - unknown yeast - Cladosporium sp. - mycelia sterilia

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Park between Marijana Cvetkovića street and Braće Kavurić street
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Peruško Bogdanić
TITLE OF THE WORK:	Bez jahača / Riderless
YEAR OF EXECUTION:	1983.
MATERIALS:	Zinc plated painted steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**10/1 (coatings)**	x		Optical microscopy , SEM/EDS	1. Most probably ground layer - in larger part consists of organic compound (binder/resin).	Micro FTIR	1. Most probably ground layer - in larger part consists of organic compound (binder/resin).				

					2. Red paint layer - containing chalk, most probably titanium white and barite in small quantities. Iron present in traces suggests that red ochre could be present 3. Red paint layer - titanium white and Chrome red ($PbCrO_4 \cdot PbO$)		2. Red paint layer - containing alkyd binder; It is probably a red unidentified organic binder is also present. 3. Red paint layer - alkyd binder				
2	**10/3 (corrosion products)**	x						SEM/EDS	zinc plated steel		

2	**10/4 (corrosion produsts)**	x						FT-IR	- alkyds and silicates; -The peaks at 1507, 1384 and 831 cm-1 indicate that Hydrozincite (Zn5(CO3)2(OH)6) is also present in the sample as corrosion product of zinc.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	storage
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Branislav Milašinović
TITLE OF THE WORK:	Krajputaš / Wayside Monument
YEAR OF EXECUTION:	1984.
MATERIALS:	Painted steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**38/1 (coatings)**	x		Optical microscopy , FT-IR, SEM/EDS	1. Red base coat - red ochre, calcium carbonate 2. Black over coat - an organic black pigment (probably carbon black)	FT-IR	1. Red base coat - alkyd resin. 2. Black over coat - alkyd resin.				

2	**38/2 (coatings)**	x		Optical microscopy , FT-IR, SEM/EDS	1. Red base coat - calcium carbonate, red ochre 2. White over coat - barium sulphate, titanium white 3. Orange layer, present only partially, probably superficial contaminants containing iron, phosphorous, aluminium.		1. Red base coat - alkyd resin. 2. White over coat - alkyd resin.				
2	**38/5 (corrosion products)**	x						SEM/EDS	- iron oxide.		
3	**38/6 (corrosion products)**	x						FT-IR	- iron oxide, silicate minerals and unidentified organic compound (possibly acrylates). - The peak at 1384 cm-1 is attributable to nitrates		

									vibrational frequencies.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Kneza Branimira 33
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Zvonimir Kamenar
TITLE OF THE WORK:	Leptir / Butterfly
YEAR OF EXECUTION:	1982.
MATERIALS:	Painted steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**31/1 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	1. Base blue coat - chalk, titanium white and barite and most probably lead white and Prussian blue.	Micro FT-IR	1. Base blue coat - alkyd resin as binder 3. Transparent over coat - organic resin 4. Grey top coat - an				

					2. Red over coat - calcite and probably an organic red pigment. 3. Transparent over coat - mostly consisting of carbon (organic resin) 4. Grey top coat - zinc white		organic binder.				
2	**31/2 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	1. Red base coat - chalk and in a minor part, titanium white. 2. Grey top coat - zinc particles visible at polarized light.	Micro FT-IR	1. Red base coat - alkyd resin 2. Grey top coat - most probably containing in an organic binder (high concentration of carbon)				
2	**31/5 (corrosion products)**	x						SEM/EDS	- iron oxide		
3	**31/6 (corrosion products)**	x				FT-IR	- alkyd	FT-IR	- iron oxide - silicates,		

									calcium oxalate and nitrates.		
4	**31/7 (microbiological)**		x							Microbiological analysis	- green algae (Chlorophyta, most probably genus Chlorococcum, Chlorella or Trebouxia), round shaped and black fungal conidia - Penicillium - Fusarium - Aspergillus - Alternaria - Phoma - Oomycete

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Kneza Branimira street, between numbers 23 and 25
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Zvonimir Kamenar
TITLE OF THE WORK:	Imaginarni stroj / Imaginary Machine
YEAR OF EXECUTION:	1982.
MATERIALS:	Painted steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**30/1 (coatings)**			Optical microscopy , SEM/EDS	- there are visible 3 layers, light grey one, red one and a dark grey one. - SEM/EDS has shown how the red base coat layer is mainly consisted of red lead, the grey over coat	SEM/EDS	- organic binder				

					consists of barium sulphate and titanium oxide with organic binder. the top coat contains zinc, sodium and an organic binder.						
2	**30/2 (coatings)**			Optical microscopy , SEM/EDS	- The observation of the layers detected the same layers as in the sample 30/1. - SEM/EDS has shown also the same composition of the layers. The base red coat is probably made of red lead (not analyzed by EDS), the over coat consist of titanium oxide and barium sulphate, while the top coat is contains zinc and organic binder.	SEM/EDS	- organic binder				

2	**30/4 (coatings)**			FT-IR	- calcium carbonate. Silicates are also present in the sample.	FT-IR	- alkyd resin				
3	**30/5 (corrosion products)**							SEM/EDS	- iron oxide		
4	**30/6 (corrosion products)**					FT-IR	- alkyd resin	FT-IR	- iron oxide - calcium carbonate - Silicates are also present in the sample as well as nitrates.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Trg hrvatske državnosti
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Belizar Bahorić
TITLE OF THE WORK:	Visoki napon / High Voltage
YEAR OF EXECUTION:	1982.
MATERIALS:	Painted steel (zinc plated?)

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**27/1 (coatings)**			Micro FT-IR, Optical microscopy , SEM/EDS	1. Grey base layer - zinc 2. Red base coat - chalk. The red colour is probably given by an organic pigment or dye. 3. Top coat - containing an organic	Micro FT-IR	1. Grey base layer an organic binder 2. Red base coat - alkyd resin 3. Top coat - containing an organic compound and iron.				

					compound and iron.						
2	**27/3 (corrosion products)**							SEM/EDS	- iron oxides and zinc oxides		
2	**27/4 (corrosion products)**					FT-IR	-alkyd resin	FT-IR	- silicate minerals, phosphates		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	storage
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Branko Ružić
TITLE OF THE WORK:	Vrata / Doors
YEAR OF EXECUTION:	1984.
MATERIALS:	Painted steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**			**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**		**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**24/1 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	1. Red base coat - chalk and red ochre most probably. Original base coat possibly missing. Particles consisting		Micro FT-IR	1. Red base coat - the binder is alkyd resin 2. Black top coat - alkyd resin				

					in zinc and oxygen are also present suggesting. Particles of titanium white have also been detected in this layer. 2. Black top coat - an unidentified organic black pigment							
2	**24/2 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	1. Red base coat - chalk and red ochre most probably. Original base coat possibly missing. 2. Black top coat - barite, chalk Obtained micro FTIR spectra of		Micro FT-IR	1. alkyds 2. alkyd binder				

					the layers are affected by signals of nearby areas.							
2	**24/5 (corrosion produsts)**	x							SEM/EDS	- iron oxide		
3	**24/6 (corrosion products)**	x							FT-IR	- iron oxide		

*** mortars, stone, metal ect.**

**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	storage
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Vera Fischer
TITLE OF THE WORK:	Cvijet / Flower
YEAR OF EXECUTION:	1980.
MATERIALS:	Painted steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**34/1 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	1. Base coat - minium, most probably red ochre 2. Orange over coat - minium and barium sulphate 3. Yellow top coat - chrome yellow, yellow	Micro FT-IR	1. Base coat - most probably alkyd resin. 2. Orange over coat - most probably alkyd resin 3. Yellow top coat - most				

					ochre, barium sulphate		probably alkyd resin.				
2	**34/3 (corrosion products)**	x						SEM/EDS	- iron oxide		
2	**34/4 (corrosion products)**	x						SEM/EDS	- iron oxide; - The high signal of lead is due to the present of the base coat in the sample.		
3	**34/5 (corrosion products)**	x				FT-IR	- alkyd resin	FT-IR	- silicate minerals, goethite (iron oxide) present in a minor part. - The peak at 1385 cm-1 is attributable to nitrates present in the sample.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Intersection of Kneza Branimira street and Hrvatskog narodnog preporoda street, across from the Slovenski square
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Boško Atanacković
TITLE OF THE WORK:	Kompozicija I i II / Composition I and II
YEAR OF EXECUTION:	1982.
MATERIALS:	Painted steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**29/2 (coatings)**			SEM/EDS	- base coat is made of a resin containing aluminium flakes. - On the surface other contaminants are present mainly deposited from						

					the environment like Si, P, Ca.						
2	**29/3 (coatings)**			Micro FT-IR, Optical microscopy , SEM/EDS	- base coat - aluminium metal flakes with structure and composition of the layers are those detected in sample 28/1.	Micro FT-IR	- base coat consisting of alkyd binder (resin)				
2	**29/5 (corrosion products)**							FT-IR	- alkyd resin and iron oxides. - The peak at 1385 cm-1 is attributable to nitrates.		
3	**29/6 (corrosion products)**							SEM/EDS	- metallic support is made of iron (steel) and the main corrosion product is iron oxide.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Trg hrvatske državnosti
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Ante Rašić
TITLE OF THE WORK:	Govornik / Orator
YEAR OF EXECUTION:	1984.
MATERIALS:	Painted steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**26/1 (coatings)**	x		Micro FT-IR, Optical microscopy , SEM/EDS	1. Red base coat - red ochre, chalk and an organic compound (most probably alkyd resin as binder). 2. White over coat - titanium white and barite.	Micro FT-IR	1. Red base coat - most probably alkyd resin as binder 2. White over coat - High concentration of carbon suggests an organic binder;				

					3. Grey top coat - metallic flakes made of aluminium		3. Grey top coat - organic binder (most probably alkyd resin)				

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Road flanking the Rohrwerk Maxhutte production site
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Dubravka Sambolec
TITLE OF THE WORK:	Ritam II / Rhythm II
YEAR OF EXECUTION:	1978.
MATERIALS:	Painted steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**19/1 (coatings)**	x		Optical microscopy , SEM/EDS	2. Dark unidentified organic base coat (with visible UV fluorescence) with regular thickness damaged by the corrosion of the support.	Micro FT-IR	3. Red over coat - alkyd binder 4. Blue paint layer - alkyd binder. 5. Red/orange topcoat - alky binder				

					3. Red over coat - organic red pigment, barite 4. Blue paint layer - organic origin 5. Red/orange topcoat - barite, unidentified organic red/orange pigment 6. Yellow top coat - high concentration of lead but no other elements that could indicate the exact composition of the yellow pigment.						
2	**19/3 (corrosion products)**	x		SEM/EDS	The sample shows high concentration of lead suggesting that the base coat of minium is			SEM/EDS	- Spectra 88 and 89 show the presence of iron and zinc indicating that the		

					actually detected.				support is zinc plated steel. The corrosion is limited and it is possible to presume consists of iron oxide.		
2	**19/4 (corrosion products)**	x		FT-IR	minium (531, 466 cm-1) and silicates (1024 cm-1).	FT-IR	The spectrum shows peaks attributable to alkyds (2853, 2924, 1729, 1270, 1118, 1068 cm-1)	FT-IR	- the corrosion of the metal support is very limited.		
3	**19/5 (microbiological)**		x							Microbiological analysis	- bigger yellow lichen with strong hyphae, which are carrying green algae (Chlorophyta, most probably genus Chlorococcum, Chlorella or Trebouxia)

											- round shaped and black fungal hyphae/conidia - Trichoderma - Alternaria - Fusarium - Chaetomium - Oomycota

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH...**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	By the building on the right of the main enterance of ABS steel
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Erik Lovko
TITLE OF THE WORK:	Stup puzzle / Puzzle Column
YEAR OF EXECUTION:	1978.
MATERIALS:	Painted steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**17/1 (coatings)**	x		FT-IR, Optical microscopy , SEM/EDS	1. Support (steel) - On the analysed sample the base coat of dark red color (probably minium) is present only in some points.	FT-IR	alkyds				

					2. Yellow top coat - carbon, oxygen, lead, titanium, sulphur and chrome (other elements present in traces) which suggests that lead chrome yellow is present, admixed with barium sulphate ad titanium oxide. 3. Second yellow top coat, with same similar composition as the first one. The higher concentration of calcium indicates that in this layer most probably also chalk is present.						

2	**17/3 (coatings)**	x		Optical microscopy , SEM/EDS	1 and 2 - No base coat was identified. Blue top coat - carbon, oxygen, lead, titanium, and copper. The blue is identified as Phtalocyanine Blue 3. The second blue top coat layer shows the same composition but contaoins additionally barite.	FT-IR	1 and 2 alkyd binder				
2	**17/5 (microbiological)**		x							Microbiological analysis	- majority green algae (Chlorophyta, most probably genus Chlorococcum, Chlorella or Trebouxia); -round shaped and black fungal hyphae/conidia - Trichoderma - Alternaria

											-Cladosporium

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	By the main enterance of ABS steel
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Unknown
TITLE OF THE WORK:	Unknown (Skulptura od rezanih cijevi / Cut Tubes Sculpture)
YEAR OF EXECUTION:	1974.
MATERIALS:	Painted steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**16/1 (coatings)**	x		Optical microscopy , SEM/EDS	2. White base coat layer - chalk (made of dolomite MgCa(CO3)2) and titanium white and alkyd binder 3. Grey paint layer - chalk, barite, titanium	Micro FT-IR	2. White base coat layer - alkyd binder 4. First top coat - high concentration of carbon suggests an organic compound.				

					white and containing iron and zinc. Most probably the black pigment is of organic nature. 4. First top coat - high concentration of carbon suggests an organic compound. 5. Red over coat - red ochre, barite, silicates and titanium white.						
2	**16/3 (microbiological)**		x							Microbiological analysis	- green algae (Chlorophyta, most probably genus Chlorococcum, Chlorella or Trebouxia); - round shaped and chains of black fungal hyphae/conidia - Aspergillus - Alternaria

											- Cladosporium

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Marijana Cvetkovića, by the road going from main entrance of ex Sisak Ironworks towards city center
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Theo Amrein Kujundžić
TITLE OF THE WORK:	Naš život / Our Life
YEAR OF EXECUTION:	1977.
MATERIALS:	Steel (painted?)

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**7/1 (corrosion products)**	x						SEM/EDS	Iron oxide/hydroxides. Barite, calcium and zinc most probably belongs to the ground layer.		
2	**7/2 (metal)**	x						SEM/EDS	iron with chromium suggesting an iron chromium alloy		

2	**7/3 (corrosion products)**	x						FT-IR	main peaks in the spectrum - iron oxide. Peaks at 2900-2800 and 1738 cm-1 are assignable to alkyds indicating that the degradation of the binder of the paint layers (or other superficial coatings) is consequently affected in the corrosion processes and structure changes of the metal support.		
3	**7/4 (microbiological)**		x							Microbiological analysis	-green algae (Chlorophyta, first column) and white fungal hyphae - genera Trichoderma - Aspergillus - Alternaria - Fusarium - Rhizoctonia - Trichoderma sp.

*** mortars, stone, metal ect.**

**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Marijana Cvetkovića, by the road going from main entrance of ex Sisak Ironworks towards city center
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Milena Lah
TITLE OF THE WORK:	Forma / Form
YEAR OF EXECUTION:	1973.
MATERIALS:	Painted (zinc plated?) steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**6/1 (coatings)**	X		Optical microscopy , SEM/EDS	barium, sulfur (barite), calcium (chalk), silicates and sodium and in in a minor part also iron, magnesium, aluminum and potassium			SEM/EDS	Possible zinc plating on steel base metal		
2	**6/2 (coatings)**	X		FT-IR	The main peaks in the spectrum are assignable to chalk, barite and to alkyds.	FT-IR	Alkyd binder				

					The peak to 2019 cm-1 is attributable to Hexacyanoferrate(II) Zinc; Trihydrate (a complex of Fe with chemical formula Zn2[Fe (CN)6]·2H2O). Salts of the anion [Fe(CN)6]4− are usually yellow colored like the patina nearby the sampling location. The presence of this complex could refer to degradation processes of zinc in relation to the presence of pigment containing the ferrocyanide anion. This latter could be found in the pigment Prussian blue.						

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Ulica Marijana Cvetkovića, close to Technical School Sisak
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Milena Lah
TITLE OF THE WORK:	Galebovo krilo /Seagull's Wing
YEAR OF EXECUTION:	1973.
MATERIALS:	Painted steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**2/1 (coatings – cross section)**	x		– optical microscopy at 200X and 1000X magnification, SEM/EDS	1. Ground layer: iron oxide, chalk, silicates, and probably red organic pigment quinacridone. 2. Orange paint layer: barite,	- micro FT-IR	Alkyd binder	Visual observation	Steel pipes		

					titanium white, chalk, silicates. In this layer lead could be present also as red lead (Pb_3O_4). 3.Yellow paint layer: barite, most probably chalk, chrome and lead suggesting that lead chrome yellow is present. (PbCrO4)						
2	**2/3 (corrosion products)**	x						FT-IR	- Brochantite		
3	**2/4 (metal and corrosion products)**	x						SEM/EDS	Steel, iron oxide formed as globular nodules		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Trg hrvatske državnosti 1, inside the Municipal Library
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Slobodanka Stupar
TITLE OF THE WORK:	Molitvenik / Prayer Book
YEAR OF EXECUTION:	1987.
MATERIALS:	steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**21/1 (coatings)**	x		Optical microscopy , SEM/EDS, FT-IR	- barite and chalk and nitrates (at 1384 cm-1).	FT-IR	- alkyds				
2	**21/3 (corrosion products)**	x						SEM/EDS	- iron oxides.		
2	**21/4 (corrosion products)**	x						FT-IR	- water (1353 and 1630 cm-1) and nitrates. Chalk and		

									silicates are also present.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH...**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	In front of present day Rohrwerk Maxhutte production hall
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Petar Barišić
TITLE OF THE WORK:	Muškarac i žena / Man and Woman
YEAR OF EXECUTION:	1979.
MATERIALS:	Zinc plated steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**18/1 (corrosion products)**	x						SEM/EDS	- main component of the corrosion are iron and oxygen. - Zinc is also detected - Silicon, aluminium, sulphur, phosphorous and		

									potassium (most probably contaminants deposited from the environment)		
2	**18/2 (corrosion products)**	x						FT-IR	- alkyds, silicates, nitrates and iron oxides - Water, as humidity, are also visible in the spectrum (peaks at 3336 and 1643 cm-1).		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Park between Marijana Cvetkovića street and Braće Kavurić street
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Dušan Subotić
TITLE OF THE WORK:	Reljef u prostoru / Relief in Space
YEAR OF EXECUTION:	1981.
MATERIALS:	Painted steel (zinc plated?)

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**12/1 (coatings)**			Optical microscopy, SEM/EDS	1. Support - zinc plated steel showing widespread corrosion; 2. White base coat - chalk and alkyd binder. 3. White top coat - chalk, titanium white and alkyd binder.	Micro FT-IR	2. White base coat - alkyd binder. 3. White top coat - alkyd binder.				

					4. Yellow top coat - unidentified yellow pigment;						

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Park between Marijana Cvetkovića street and Braće Kavurić street
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Josip Diminić
TITLE OF THE WORK:	Objekt II / Object II
YEAR OF EXECUTION:	1979.
MATERIALS:	Painted steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**9/1 (patina)**		x			FT-IR	The FTIR spectrum exhibits strong absorption bands of calcite and talc that partially overlap the organic component, preventing its				

							clear identification. Most peaks attributable to the organic component are compatible with the presence of a polyester resin (e.g., the polyester putty) or a polyester-polyurethane resin (e.g. the paint). The spectrum alone does not allow the identification of specific degradation products of the paint or of the underlying putty.				

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Park between Marijana Cvetkovića street and Braće Kavurić street
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Jure Žaja
TITLE OF THE WORK:	U spomen Jurju Dalmatincu / In Memory of George of Dalmatia
YEAR OF EXECUTION:	1979.
MATERIALS:	Zinc plated steel (painted?)

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**8/1**	x						FT-IR	The results by means of FTIR spectroscopy does not reflect the composition of the corrosion products. The main peaks in the spectrum		

									are assignable to alkyds and barite. Silicates are also present in a minor part.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Marijana Cvetkovića, by the road going from main entrance of ex Sisak Ironworks towards city center
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Sašo Stevović
TITLE OF THE WORK:	Proces rada / The Work Process
YEAR OF EXECUTION:	1975.
MATERIALS:	steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**3/1 (metal)**	X						SEM/EDS	Manganese steel		
2	**3/2 (corrosion products)**	X						SEM/EDS	Mainly iron oxides, silicates		
2	**3/3 (corrosion products)**	X						FT-IR	Iron oxide		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Trg hrvatske državnosti
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Ante Kuduz
TITLE OF THE WORK:	Grad '85. / City '85
YEAR OF EXECUTION:	1985.
MATERIALS:	Painted steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**23/1 (coatings)**	x		FT-IR, Optical microscopy , SEM/EDS	- two red coloured layers. - The lower layer - chalk, titanium white and some organic binder (high concentration of C) - The layer - barite, probably zinc white and	FT-IR	The binder in both layers is alkyd resin.				

					other elements in traces.						
2	**23/2 (coatings)**	x		FT-IR, Optical microscopy , SEM/EDS	- two red coloured layers as in sample 23/2. - The lower layer - chalk, titanium white and some organic binder (high concentration of C). - The upper layer - barite, probably zinc white, organic binder and other elements in traces.	FT-IR	The binder in both layers is alkyd resin.				
2	**23/5 (corrosion products)**	x						SEM/EDS	- iron oxides		
3	**23/6 (corrosion products)**	x				FT-IR	alkyds	FT-IR	- silicate minerals		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Braće Kavurića street, Swisslion factory circle
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Josip Zeman
TITLE OF THE WORK:	Crne vizije II / Dark Visions II
YEAR OF EXECUTION:	1983.
MATERIALS:	Painted zinc plated steel

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**14/1 (coatings)**	x		Optical microscopy , SEM/EDS	1. Basecoat, - barite; 2. Black overcoat - organic black pigment; 3. Black topcoat - zinc and sodium;	Micro FT-IR	1. Basecoat, - organic binder (most probably alkyd); 2. Black overcoat - alkyd binder; 3. Black topcoat -				

							organic binder;				
2	**14/3 (microbiological)**		x							Microbiological analysis	- lichen containing green algae (Chlorophyta) and abundant chains of black fungal hyphae/conidia; - Trichoderma - Alternaria - Cladosporium - Rhizoctonia - Verticillium - white colony contaminated with Rhizoctonia - Bacterial growth was also observed in mixed culture

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Marijana Cvetkovića, by the road going from main entrance of ex Sisak Ironworks towards city center
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Miivoje Babović
TITLE OF THE WORK:	Skulptura V /Sculpture V
YEAR OF EXECUTION:	1981.
MATERIALS:	Painted steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**4/1 (coatings)**	X		Optical microscopy , SEM/EDS	barite, chalk and silicates						
2	**4/2 (coatings)**	x				FT-IR	Alkyds (chalk, barite)				

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Andrije Hebranga 30
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Jure Žaja
TITLE OF THE WORK:	Glava bika / Bull's Head
YEAR OF EXECUTION:	1979.
MATERIALS:	Zinc plated steel

	Name of the sample	Original matirials	No original materials	Pigments / dyes		Organic binders		Type of support*		Other**	
				Identification methods	Results	Identification methods	Results	Identification methods	Results	Identification methods	Results
1	**33/1 (corrosion products)**							SEM/EDS	- iron oxide; - Other elements detected are due to contaminants from the environment. Zinc is present since the metallic support		

									(iron) is zinc plated.		
2	**33/3 (corrosion products)**					FT-IR	- alkyd resin	FT-IR	- silicate minerals - The peak at 1385 cm-1 is attributable to nitrates vibrational frequencies.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**

NUMBER OF PARTNER:	**13 Gradski muzej Sisak/Sisak Municipal Museum**
TYPE OF WORK:	**sculpture**
COUNTRY:	Croatia
CITY:	Sisak
ADDRESS:	Park between Marijana Cvetkovića street and Braće Kavurić street
OWNER / CUSTODIAN:	City of Sisak / Gradski muzej Sisak /Gradska galerija Striegl
ARTIST:	Josip Zeman
TITLE OF THE WORK:	Crne vizije I / Dark Visions I
YEAR OF EXECUTION:	1983.
MATERIALS:	Zinc plated steel (paited?)

	Name of the sample	**Original matirials**	**No original materials**	**Pigments / dyes**		**Organic binders**		**Type of support***		**Other****	
				Identification methods	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**	**Identification methods**	**Results**
1	**11/1 (corrosion products)**	x						SEM/EDS	- iron oxide; - Presence of other silicon, zinc, aluminium, potassium is also detected, most probably due to particles deposition		

									from the environment.		
2	**11/2 (corrosion products)**	x						FT-IR	- iron oxide; - Peaks around 2800-2900 cm-1 and 1740 cm-1 are attributable to organic resin.		

*** mortars, stone, metal ect.**
**** Additional research or analyzes, for example: aging tests, colorimetry, pH…**