



WP3: Analytical characterization

Sisak Steelworks Sculpture Park, Croatia:
Description of the samples delivered to METRIS
for analysis

Introductory remarks

This document is an expanded version of the *Catalogue of Samples Taken from the Sculptures from Sculpture Park of Sisak Ironworks, Sisak, Croatia*, which was produced by Neven Peko (Sisak Municipal Museum) and delivered to METRIS by email on July 14, 2019.

For each artwork, basic information on constituent materials is provided. In addition to the photos of sampling locations for each artwork and the list of analyses requested for each sample, the document contains a brief description of the samples delivered to METRIS,¹ and specification of the information that the analysis of a particular sample is expected to provide. For most of the painted sculptures additional information, derived from various sources, is provided about paint stratigraphy – it is hoped that this will aid the conservation scientist(s) in the interpretation of the analysis results.

The term 'paint' employed in this document refers to a mixture of a pigment and a suitable liquid that forms a coating. On most of the painted sculptures from the Sisak Steelworks Sculpture Park, visual inspection and earlier stratigraphic analysis of small samples of paint obtained from the sculptures have shown presence of a **BASE COAT** and a **TOPCOAT**. A base coat (an anticorrosive paint) could have been applied in one or more layers, which do not necessarily have the same tone or colour. A topcoat could also have been applied in more than one layer. A layer of putty could have been applied between the two layers that form the base coat, as was the case with the sculpture *Object II* by Josip Diminic.² It is suspected that the sculpture *Orator* by Ante Rasic also has an **OVERCOAT**.

The term 'paint composition' is used to denote identification of pigments, binders, fillers and other paint additives in the layer(s) that form a base coat, the layer(s) that form a topcoat, and in the layer(s) that form an overcoat.

¹ The sampling was performed by or under the supervision of Neven Peko.

² For more information see: Sunara, Sagita Mirjam. "Problematika restauriranja obojenih (metalnih) skulptura na otvorenom: slučaj skulpture *Objekt II* Josipa Diminića", *Godišnjak zaštite spomenika kulture Hrvatske* 37–38 (2015): pp. 197–210, available at: https://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=219760.



Galebovo krilo [Seagull's Wing]

Artist: Milena Lah

Creation date: 1973

Materials: Painted steel

Specific details about paint:

Visual inspection suggests that the coating system includes a base coat and a topcoat. An old photograph obtained from the artist's son, Igor Lah, shows that the topcoat was originally reddish orange in colour, while the metal sphere in the upper part of the sculpture was golden. The sphere now looks silvery, and has green corrosion products.

Sample	Sample description	Information requested	Analysis requested
2/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
2/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
2/4	Tiny metal flakes	Characterization of the metal support (metal composition). Characterization of corrosion products.	SEM analysis

Photographs of sample locations (all photographs by Neven Peko):

2/1



2/2



2/4



Proces rada [Work Process]

Artist: Nedjeljko (Sašo) Stevović

Creation date: 1975

Material: Steel

Sample	Sample description	Information requested	Analysis requested
3/1	Tiny metal particles (scrapings)	Characterization of the metal support (metal composition).	SEM analysis
3/2	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
3/3	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

3/1



3/2



3/3



Skulptura V [Sculpture V]

Artist: Milivoje Babović

Creation date: 1981

Materials: Painted steel, steel pipes, galvanized steel pipes

Sample	Sample description	Information requested	Analysis requested
4/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
4/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

4/1



4/2



Objekt I [Object I]

Artist: Josip Diminić

Creation date: 1979

Materials: Painted steel

Specific details about paint:

The coating system includes a base coat and a topcoat. Same distribution of layers as with another sculpture produced by Josip Diminić (Object II) can be expected: two layers of base coat (the lower one is bright orange in colour, and the upper one is reddish orange), and two layers of topcoat. On the sculpture Object II (but not on the entire surface!), a coat of white putty – applied in two layers – was found between the two layers that form the base coat.

Sample	Sample description	Information requested	Analysis requested
5/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
5/2	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
5/3	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
5/4	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
5/5	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
5/6	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
5/7	Tiny corroded metal particles (scrapings and flakes)	Characterization of corrosion products.	SEM analysis
5/8	Tiny corroded metal particles (scrapings and flakes)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

5/1



5/2



5/3



5/4



5/5



5/6



5/7



5/8



Forma [The Form]

Artist: Milena Lah
Creation date: 1973
Materials: Painted steel

Specific details about paint:

Visual inspection suggests that the coating system includes a base coat and a topcoat. The base coat appears to be silvery in colour, while the topcoat is black.

Sample	Sample description	Information requested	Analysis requested
6/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
6/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

6/1



6/2



Naš život [Our Life]

Artist: Theo Amrein Kujundžić

Creation date: 1977

Materials: Steel

Sample	Sample description	Information requested	Analysis requested
7/1	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
7/2	Tiny metal particles (scrapings)	Characterization of the metal support (metal composition).	SEM analysis
7/3	Tiny metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis
7/4	Sample collected by surface swabbing technique.	Identification of biodeteriogens.	Microbiological analysis

Photographs of sample locations (all photographs by Neven Peko):

7/1



7/2



7/3



7/4



U spomen Jurju Dalmatincu [In Memory of George of Dalmatia]

Artist: Jure Žaja

Creation date: 1979

Materials: Galvanized steel

Sample	Sample description	Information requested	Analysis requested
8/1	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

8/1



Bez jahača [Riderless]

Artist: Peruško Bogdanić

Creation date: 1983

Materials: Painted galvanized steel

Specific details about paint:

Visual inspection and stratigraphic analysis suggests that the coating system includes a two-layer topcoat. Both layers are red, but the upper one is slightly lighter.

Sample	Sample description	Information requested	Analysis requested
10/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
10/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
10/3	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
10/4	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

10/1



10/2



10/3



10/4



Crne vizije I [Dark Visions I]

Artist: Josip Zeman

Creation date: 1983

Materials: Galvanized steel

Sample	Sample description	Information requested	Analysis requested
11/1	Flake (corroded metal)	Characterization of corrosion products.	SEM analysis
11/2	Flake (corroded metal)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

11/1



11/2



Reljef u prostoru [Relief in Space]

Artist: Dušan Subotić

Creation date: 1981

Materials: Painted steel

Sample	Sample description	Information requested	Analysis requested
12/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
12/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

12/1



12/2



Crne vizije II [Dark Visions II]

Artist: Josip Zeman
Creation date: 1983
Materials: Painted steel

Specific details about paint:

Visual inspection and stratigraphic analysis could not confirm the presence of a base coat. The topcoat consists of two layers of black paint.

Sample	Sample description	Information requested	Analysis requested
14/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
14/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
14/3	Sample collected by surface swabbing technique.	Identification of biodeteriogens.	Microbiological analysis

Photographs of sample locations (all photographs by Neven Peko):

14/1



14/2



14/3



Antipodi [Antipodes]

Artist: Ivan Kožarić

Creation date: 1972

Materials: Painted steel

Specific details about paint:

Visual inspection and stratigraphic analysis suggest that the sculpture has been repainted several times. Nine layers of paint were detected in a sample taken from the base of the sculpture. Six layers of paint were detected in the sample taken from the upper part of the sculpture.

Sample	Sample description	Information requested	Analysis requested
15/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
15/2	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
15/3	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
15/4	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
15/5	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
15/6	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis
15/7	Sample collected by surface swabbing technique.	Identification of biodeteriogens.	Microbiological analysis

Photographs of sample locations (all photographs by Neven Peko):

15/1



15/2



15/3



15/4



15/5



15/6



15/7



Naziv nepoznat (Skulptura od rezanih cijevi?)
[Unknown title (Cut Pipes Sculpture?)]

Artist: Unknown

Creation date: Unknown

Materials: Painted steel

Sample	Sample description	Information requested	Analysis requested
16/1	Flake/tiny particles (paint layers) ³	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
16/2	Flake/tiny particles (paint layers) ⁴	Paint composition.	Micro FT-IR analysis
16/3	Sample collected by surface swabbing technique.	Identification of biodeteriogens.	Microbiological analysis

³ The sample size was not recorded at the moment of sampling, so this data had to be drawn from memory. The person carrying out the analysis is kindly asked to check this data by optical microscope inspection, and to record the results in the Chemical Analysis Report.

⁴ Same as previous comment.

Photographs of sample locations (all photographs by Neven Peko):

16/1



16/2



16/3



Stup puzzle [Puzzle Column]

Artist: Erik Lovko

Creation date: 1978

Materials: Painted steel

Specific details about paint:

Visual inspection and stratigraphic analysis could not confirm the presence of a base coat. The topcoat consists of two layers.

Sample	Sample description	Information requested	Analysis requested
17/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
17/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
17/3	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
17/4	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
17/5	Sample collected by surface swabbing technique.	Identification of biodeteriogens.	Microbiological analysis

Photographs of sample locations (all photographs by Neven Peko):

17/1



17/2



17/3



17/4



17/5



Muškarac i žena [Man and Woman]

Artist: Petar Barišić

Creation date: 1979

Materials: Galvanized steel

Sample	Sample description	Information requested	Analysis requested
18/1	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
18/2	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

18/1



18/2



Ritam [Rhythm]

Artist: Dubravka Duba Sambolec

Creation date: 1978

Materials: Painted steel

Specific details about paint:

Visual inspection and stratigraphic analysis suggest that the coating system includes a base coat and a topcoat. The basecoat appears to contain a single layer of orange paint. The topcoat consists of two layers of red paint.

Sample	Sample description	Information requested	Analysis requested
19/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
19/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
19/3	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
19/4	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis
19/5	Sample collected by surface swabbing technique.	Identification of biodeteriogens.	Microbiological analysis

Photographs of sample locations (all photographs by Neven Peko):

19/1



19/2



19/3



19/4



19/5



Slučajan oblik s tezom [Random Form With a Thesis]

Artist: Zlatko Zlatić

Creation date: 1978

Materials: Painted steel

Specific details about paint:

A former steelworker who participated in the making of Zlatko Zlatić's sculptures explained that only a coating of metallic silver primer (basecoat) was applied to his sculptures.

Sample	Sample description	Information requested	Analysis requested
20/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
20/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
20/3	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
20/4	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis
20/5	Sample collected by surface swabbing technique.	Identification of biodeteriogens.	Microbiological analysis

Photographs of sample locations (all photographs by Neven Peko):

20/1



20/2



20/3



20/4





20/5



Molitvenik [Prayer Book]

Artist: Slobodanka Stupar

Creation date: 1987

Materials: Painted steel

Sample	Sample description	Information requested	Analysis requested
21/1	Flake/tiny particles (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
21/2	Flake/tiny particles (paint layers)	Paint composition.	Micro FT-IR analysis
21/3	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
24/4	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

21/1



21/2



21/3



21/4



Zid [Wall]

Artist: Dora Kovačević

Creation date: 1985

Materials: Painted steel

Specific details about paint:

Visual inspection suggests that there is no base coat. Only a topcoat containing a single layer of black paint is visible to the naked eye.

Sample	Sample description	Information requested	Analysis requested
22/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
22/2	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
22/3	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
22/4	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
22/5	Tiny corroded metal particles (scrapings/flakes) ⁵	Characterization of corrosion products.	SEM analysis
22/6	Tiny corroded metal particles (scrapings/flakes) ⁶	Characterization of corrosion products.	FT-IR analysis

⁵ Same as previous comment.

⁶ Same as previous comment.

Photographs of sample locations (all photographs by Neven Peko):

22/1



22/2



22/3



22/4



22/5



22/6



Grad '85 [City '85]

Artist: Ante Kudz

Creation date: 1985

Materials: Painted steel

Specific details about paint:

Stratigraphic analysis suggests that the sculpture is covered with two layers of red paint. The lower layer is much thicker than the upper one, and has a darker tone.

Sample	Sample description	Information requested	Analysis requested
23/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
23/2	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
23/3	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
23/4	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
23/5	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
23/6	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

23/1



23/2



23/3



23/4



23/5



23/6



Vrata [Doors]

Artist: Branko Ružić

Creation date: 1984

Materials: Painted steel

Specific details about paint:

Visual inspection and stratigraphic analysis suggest that the coating system includes a base coat and a topcoat. The basecoat appears to be single-layer orange paint. Two layers of black paint seem to be applied over it (the topcoat).

Sample	Sample description	Information requested	Analysis requested
24/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
24/2	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
24/3	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
24/4	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
24/5	Tiny metal particles (scrapings/flakes) ⁷	Characterization of corrosion products.	SEM analysis
24/6	Tiny metal particles (scrapings/flakes) ⁸	Characterization of corrosion products.	FT-IR analysis

⁷ Same as previous comment.

⁸ Same as previous comment.

Photographs of sample locations (all photographs by Neven Peko):

24/1



24/2



24/3



24/4



24/5



24/6



Forma I [Form I]

Artist: Hamo Čavrk

Creation date: 1982

Materials: Painted steel

Specific details about paint:

Stratigraphic analysis suggests that the coating system includes a base coat and a topcoat. The basecoat appears to contain a single layer of reddish brown paint. The topcoat consists of a single layer of black paint.

Sample	Sample description	Information requested	Analysis requested
25/1	Flake/tiny particles (paint layers) ⁹	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
25/2	Flake/tiny particles (paint layers) ¹⁰	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
25/3	Flake/tiny particles (paint layers) ¹¹	Paint composition.	Micro FT-IR analysis
25/4	Flake/tiny particles (paint layers) ¹²	Paint composition.	Micro FT-IR analysis
25/5	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
25/6	Tiny corroded metal particles (scrapings/flakes) ¹³	Characterization of corrosion products.	SEM analysis
25/7	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis
25/8	Tiny corroded metal particles (scrapings/flakes) ¹⁴	Characterization of corrosion products.	FT-IR analysis
25/9	Sample collected by surface swabbing technique.	Identification of biodeteriogens.	Microbiological analysis

⁹ Same as previous comment.

¹⁰ Same as previous comment.

¹¹ Same as previous comment.

¹² Same as previous comment.

¹³ Same as previous comment.

¹⁴ Same as previous comment.

Photographs of sample locations (all photographs by Neven Peko):

25/1



25/2



25/3



25/4



25/5



25/6



25/7



25/8



25/9



Govornik [Orator]

Artist: Ante Rašić

Creation date: 1984

Materials: Painted steel

Specific details about paint:

Visual inspection suggests that the coating system includes a base coat, a topcoat, and a clear coat. The lowest layer is orange paint. Above it is a layer of metallic silver paint. It appears that a protective clear coat (varnish?) was applied on top of that layer.

Sample	Sample description	Information requested	Analysis requested
26/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
26/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

26/1



26/2



Visoki napon [High Voltage]

Artist: Belizar Bahorić

Creation date: 1982

Materials: Painted steel

Specific details about paint:

Stratigraphic analysis of a sample taken from the metal base suggests that the coating system includes a base coat and a topcoat. The basecoat seems to contain two layers of grey paint. The topcoat consists of two layers of red paint (the lower layer is very thick and has a lighter tone).

Sample	Sample description	Information requested	Analysis requested
27/1	Flake/tiny particles (paint layers) ¹⁵	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
27/2	Flake/tiny particles (paint layers) ¹⁶	Paint composition.	Micro FT-IR analysis
27/3	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
27/4	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

¹⁵ Same as previous comment.

¹⁶ Same as previous comment.

Photographs of sample locations (all photographs by Neven Peko):

27/1



27/2



27/3



27/4



Zgurić i obitelj [Zgurić and Family]

Artist: Zlatko Zlatić

Creation date: 1978

Materials: Painted steel

Specific details about paint:

A former steelworker who participated in the making of Zlatko Zlatić's sculptures explained that only a coating of metallic silver primer (basecoat) was applied to his sculptures.

Sample	Sample description	Information requested	Analysis requested
28/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
28/2	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
28/3	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
28/4	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
28/5	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
28/6	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
28/7	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
28/8	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

28/1



28/2



28/3



28/4



28/5



28/6



28/7



28/8



Kompozicija I i II [Composition I and II]

Artist: Boško Atanacković
 Creation date: 1982
 Materials: Painted steel

Specific details about paint:

Visual inspection suggests that the sculpture was coated with grey or metallic silver paint.

Sample	Sample description	Information requested	Analysis requested
29/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
29/2	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
29/3	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
29/4	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
29/5	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
29/6	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

29/1



29/2



29/3



29/4



29/5



29/6



Leptir [Butterfly]

Artist: Zvonimir Kamenar

Creation date: 1982

Materials: Painted steel

Sample	Sample description	Information requested	Analysis requested
30/1	Flake/tiny particles (paint layers) ¹⁷	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
30/2	Flake/tiny particles (paint layers) ¹⁸	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
30/3	Flake/tiny particles (paint layers) ¹⁹	Paint composition.	Micro FT-IR analysis
30/4	Flake/tiny particles (paint layers) ²⁰	Paint composition.	Micro FT-IR analysis
30/5	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
30/6	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

¹⁷ Same as previous comment.

¹⁸ Same as previous comment.

¹⁹ Same as previous comment.

²⁰ Same as previous comment.

Photographs of sample locations (all photographs by Neven Peko):

30/1



30/2



30/3



30/4



30/5



30/6



Imaginarni stroj [Imaginary Machine]

Artist: Zvonimir Kamenar

Creation date: 1982

Materials: Painted steel

Specific details about paint:

Stratigraphic analysis of a sample taken from the green surface suggests that the coating system includes a base coat and a topcoat. The lowest layer is a thinly applied layer of grey paint (basecoat). Above it is a layer of red paint (basecoat?). Above the red paint is a thick layer of green paint (top coat).

Sample	Sample description	Information requested	Analysis requested
31/1	Flake/tiny particles (paint layers) ²¹	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
31/2	Flake/tiny particles (paint layers) ²²	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
31/3	Flake/tiny particles (paint layers) ²³	Paint composition.	Micro FT-IR analysis
31/4	Flake/tiny particles (paint layers) ²⁴	Paint composition.	Micro FT-IR analysis
31/5	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
31/6	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis
31/7	Sample collected by surface swabbing technique.	Identification of biodeteriogens.	Microbiological analysis

²¹ Same as previous comment.

²² Same as previous comment.

²³ Same as previous comment.

²⁴ Same as previous comment.

Photographs of sample locations (all photographs by Neven Peko):

31/1



31/2



31/3



31/4



31/5



31/6



31/7



Čovjek stroj [Man-Machine]

Artist: Ratko Petrić

Creation date: 1975

Materials: Painted steel, plastics

Specific details about paint:

Stratigraphic analysis of a sample taken from the left arm indicates that three layers of grey paint have been applied on the metal surface, each of a different tone.

Sample	Sample description	Information requested	Analysis requested
32/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
32/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
32/3	Tiny corroded metal particles (scrapings/flakes) ²⁵	Characterization of corrosion products.	SEM analysis
32/4	Tiny corroded metal particles (scrapings/flakes) ²⁶	Characterization of corrosion products.	FT-IR analysis

²⁵ Same as previous comment.

²⁶ Same as previous comment.

Photographs of sample locations (all photographs by Neven Peko):

32/1



32/2



32/3



32/4



Glava bika [Bull's Head]

Artist: Jure Žaja

Creation date: 1979

Materials: Galvanized steel

Sample	Sample description	Information requested	Analysis requested
33/1	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
33/2	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

33/1



33/2



Cvijet [Flower]

Artist: Vera Fišer

Creation date: 1980

Materials: Painted steel

Specific details about paint:

Visual inspection suggests that the coating system includes a base coat and a topcoat. The basecoat appears to be single-layer orange paint.

Sample	Sample description	Information requested	Analysis requested
34/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
34/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
34/3	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
34/4	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
34/5	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

34/1



34/2



34/3



34/4



34/5



Fontana (?) [Fountain (?)]

Artist: Mila Kumbatović (?)

Creation date: 1975

Materials: Painted steel, bronze

Specific details about paint:

Visual inspection suggests that the sculpture was (partially?) coated with grey paint.

Sample	Sample description	Information requested	Analysis requested
35/1	Flake/tiny particles (paint layers) ²⁷	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
35/2	Flake/tiny particles (paint layers) ²⁸	Paint composition.	Micro FT-IR analysis
35/3	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
35/4	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis
35/5	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis
35/6	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

²⁷ Same as previous comment.

²⁸ Same as previous comment.

Photographs of sample locations (all photographs by Neven Peko):

35/1



35/2



35/3



35/4



35/5



35/6



Užareni planet [Incandescent Planet]

Artist: Ratko Petrić

Creation date: 1975

Materials: Painted steel, plastics, glass fibre reinforced plastics, rubber (balloon)

Specific details about paint:

Stratigraphic analysis of a sample taken from the metal "frame" that holds the sphere suggests that the metal was coated with two layers of grey paint. The lower layer is thicker and lighter in tone.

Sample	Sample description	Information requested	Analysis requested
36/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
36/2	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
36/3	Chip (synthetic polymer)	Characterization of the synthetic polymer.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
36/4	Chip (synthetic polymer)	Characterization of the synthetic polymer.	Micro FT-IR analysis
36/5	Chip (synthetic polymer)	Characterization of the synthetic polymer.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
36/6	Chip (synthetic polymer)	Characterization of the synthetic polymer.	Micro FT-IR analysis
36/7	Chip (synthetic polymer)	Characterization of the synthetic polymer.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
36/8	Chip (synthetic polymer)	Characterization of the synthetic polymer.	Micro FT-IR analysis
36/9	Chip (synthetic polymer)	Characterization of the synthetic polymer.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
36/10	Chip (synthetic polymer)	Characterization of the synthetic polymer.	Micro FT-IR analysis

36/11	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
36/12	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis
36/13	Chip (synthetic polymer)	Characterization of the synthetic polymer.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
36/14	Chip (synthetic polymer)	Characterization of the synthetic polymer.	Micro FT-IR analysis
36/15	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
36/16	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis
36/17	Sample collected by surface swabbing technique.	Identification of biodeteriogens.	Microbiological analysis

Photographs of sample locations (all photographs by Neven Peko):

36/1



36/2



36/3



36/4



36/6



36/7



36/8



36/9



36/10



36/11



36/12



36/13



36/14



36/15



36/16



36/17



Ornament [Ornament]

Artist: Andre Mohorovičić

Creation date: 1984

Materials: Painted steel

Specific details about paint:

Visual inspection of red and blue areas suggests that the topcoat was applied in two layers. Three layers of paint are visible on the base of the sculpture: a layer of orange paint (base coat) and two layers of black paint (topcoat).

Sample	Sample description	Information requested	Analysis requested
37/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
37/2	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
37/3	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
37/4	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
37/5	Tiny corroded metal particles (scrapings/flakes) ²⁹	Characterization of corrosion products.	SEM analysis
37/6	Tiny corroded metal particles (scrapings/flakes) ³⁰	Characterization of corrosion products.	FT-IR analysis

²⁹ Same as previous comment.

³⁰ Same as previous comment.

Photographs of sample locations (all photographs by Neven Peko):

37/1



37/2



37/3



37/4



37/5



37/6



Krajputaš [Roadside Monument]

Artist: Branislav Milašinović

Creation date: 1984

Materials: Painted steel

Specific details about paint:

Visual inspection suggests that the coating system includes a base coat and a topcoat. First, the sculpture was covered with reddish paint. The topcoat was applied in two layers. Some areas of the sculpture were painted over with a semi-transparent layer of white paint.

Sample	Sample description	Information requested	Analysis requested
38/1	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
38/2	Flake (paint layers)	Paint composition.	Optical microscopy (VIS, UV, IR, POL) SEM analysis
38/3	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
38/4	Flake (paint layers)	Paint composition.	Micro FT-IR analysis
38/5	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	SEM analysis
38/6	Tiny corroded metal particles (scrapings)	Characterization of corrosion products.	FT-IR analysis

Photographs of sample locations (all photographs by Neven Peko):

38/1



38/2



38/3



38/4



38/5



38/6





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