

Data Ion Chromatography Analysis

Object / Record : 921 (KN&V)

Artist : Anoniem

Title and date : Kom, à la façon de Venise, 1700-1800

Conservator : Mandy Slager



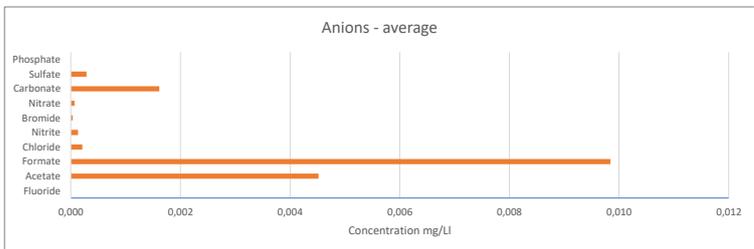
General condition	Date: 16/09/2020
2013: slecht, beschadigd, barst, lacune, object fysiek niet genummerd 2013: slecht, glasziekte, zeer actief weeping glas, gehele oppervlak met druppels, object in verder stadium gecrizzled, zeer fragiel, cleaned (demi:ethanol (4:1) met VAB foto's feb. 2011, before with many smudges, after cracks visible, also patterns at rim that were not removed during cleaning. 2017: slecht, barsten bodem en oor 2020: 17 sept: samples taken IC analysis: slecht, binnenkant vochtig, niet heel grote druppels, barstjes buik en onderkant, lacune bij oor, red = very poor 2023: droplets interior, severely crizzled, cracks, lacunae, scratches etc.	Very poor

Examination and analysis	Date: 01/08/2023
Analysis september 2020: samples were taken from the exterior surface of the object for analysis by means of Ion Chromatography by G. Verhaar, M. Slager and UvA students. The results show relatively very high concentrations of Sodium.	Likely unstable

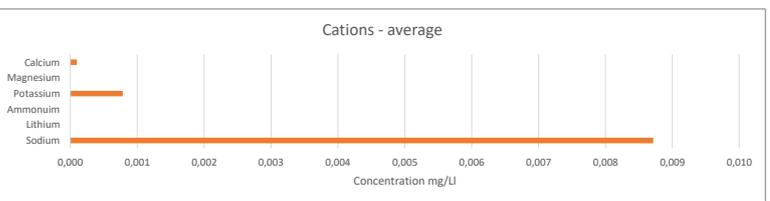
Concentrations (mg/L)

	Anions			
	U	Ave	SD	RSD
Fluoride	19,00	0,000	0,000	0,000
Acetate	60,05	4,520	0,564	0,125
Formate	45,02	9,844	1,603	0,163
Chloride	35,45	0,210	0,040	0,190
Nitrite	46,01	0,132	0,025	0,186
Bromide	111,96	0,032	0,046	1,414
Nitrate	62,01	0,068	0,019	0,272
Carbonate	60,01	1,613	1,193	0,739
Sulfate	96,06	0,286	0,009	0,030
Phosphate	94,97	0,000	0,000	0,000

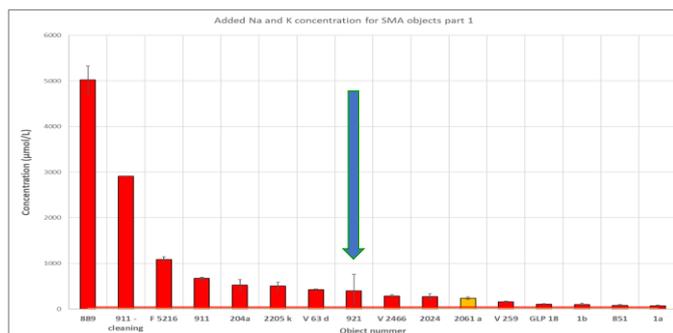
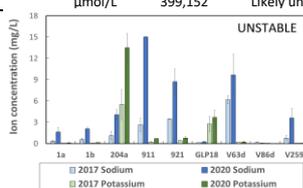
Graphs and/or Tables



	Cations			
	U	Ave	SD	RSD
Sodium	22,99	8,716	1,796	0,206
Lithium	6,94	0,000	0,000	0,000
Ammonium	18,04	0,000	0,000	0,000
Potassium	39,10	0,783	0,175	0,223
Magnesium	24,31	0,000	0,000	0,000
Calcium	40,08	0,097	0,028	0,287



Added Na and K concentrations	
Sodium	379,125
Potassium	20,026
Total	399,152 Likely unstable



	Categorisation total alkali ion concentration	µmol/L
IC-A	Likely stable	< 20
IC-B	potentially unstable	>20 <50
IC-C	likely unstable	> 50

Intepretation, questions and comments on results

The object was cleaned in 2013. The images taken by the Visual Art Box in 2013 show that the object is severely crizzled. In 2020 the object was again diagnosed with a slippery surface, droplets and crizzled. In 2023 still with droplets and crizzling.

The results from the IC analysis show relatively high concentrations of Sodium and Acetate. Although carbonates are often found on unstable glass as well, the method of IC analysis is not very sensitive for carbonates (therefore high default margin). The high concentration of Sodium is in line with the characteristics noticed during examination now: slippery and cloudy (formation of droplets on the glass surface) and severely crizzled.

In the two top graphs with representation of average concentrations of ions and cations, the standard deviation can be drawn from the raw data in the left tables, but is not inserted in the graphs. They are included in the last graph. In the bottom graph the LOQ line and red line (at very bottom of the graph) indicate that this object falls within the IC-C category. The red colour of the bar indicates that the condition was assessed as being very poor during visual examination prior to sample taking. It shows that the signs visually noticed were in line with the IC results.

Not detected: F-, NO₂-, Br-, NO₃-, PO₄3-, Li+, NH₄+, Mg²⁺. Sodium concentration is dominant compared to the concentration of Potassium. One species being dominant is usually the case when both species are present in unstable glass. Sulfate is also detected.

Suggestions further examination or analysis

- * Compositional analysis (XRF or other) to be able to combine data from visual examination with IC data and composition information for even deeper understanding of condition.
- * Research into the source for the sulfates detected
- * Fractography

Condition aspects
Very poor
Poor
Good
Unknown

Examination Analysis
Likely stable
Potentially unstable
Likely unstable
Unknown