

Data Ion Chromatography Analysis

Object / Record : 740 (KN&V)

Artist : anoniem

Title and date : soda glas, vleugel glas, à la façon de Venise, 1600-1625

Conservator : Mandy Slager



General condition	Date: 16/09/2020
2013: matig, opvallende krassen in kelk, gerelateerd aan gebruik of vervaardiging?, dofje horizontale waas onderzijde kelk, pantervormige vlekken in en horizontale baan in het midden van de klek, vingerafdrukken op het standvlak, dof uiterlijk standvlak. 2013: cleaned with demineralized water and ethanol (concentration 4:1), no images were taken by VAB 2017: slecht, ziek glas. 2020: 17 sept: samples taken for IC analysis: matig, dof uiterlijk, vingerafdrukken op de voet. Condition yellow = poor 2022: b 5 dust, c 1 cloudy, d 2 or a 2 lines or cracks (manufacture or unstable glass)	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. The results show relatively low alkali concentrations.	Likely stable

Concentrations (mg/L)

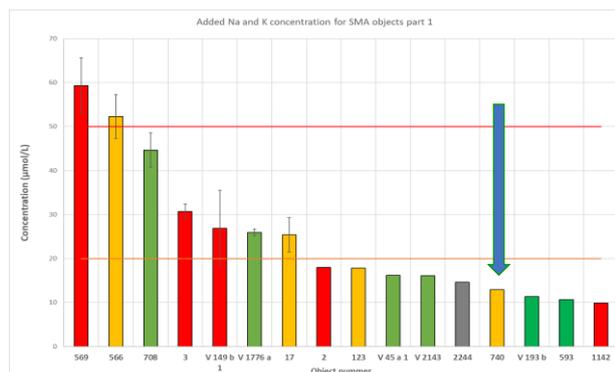
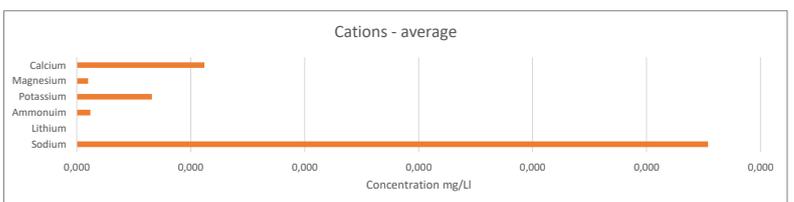
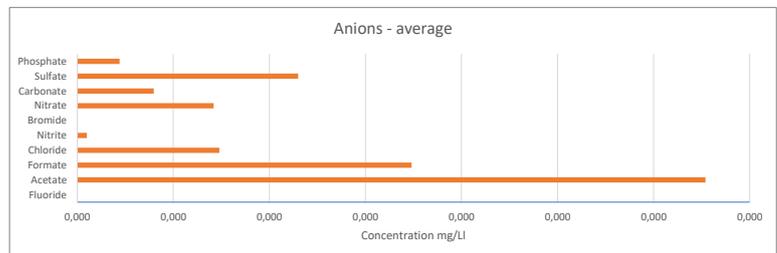
Anions				
	U	Ave	SD	RSD
Fluoride	19,00	0,000	0,000	0,000
Acetate	60,05	0,327	0,232	0,707
Formate	45,02	0,174	0,123	0,705
Chloride	35,45	0,074	0,007	0,094
Nitrite	46,01	0,005	0,005	1,019
Bromide	111,96	0,000	0,000	0,000
Nitrate	62,01	0,071	0,051	0,715
Carbonate	60,01	0,040	0,056	1,414
Sulfate	96,06	0,115	0,003	0,024
Phosphate	94,97	0,022	0,016	0,707

Cations				
	U	Ave	SD	RSD
Sodium	22,99	0,277	0,015	0,054
Lithium	6,94	0,000	0,000	0,000
Ammonium	18,04	0,006	0,001	0,108
Potassium	39,10	0,033	0,002	0,075
Magnesium	24,31	0,005	0,000	0,026
Calcium	40,08	0,056	0,008	0,135

Added Na and K concentrations			
Sodium	22,99	12,049	
Potassium	39,10	0,844	
Total	µmol/L	12,893	Likely stable

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

Graphs and/or Tables



Interpretation, questions and comments on results

The object was cleaned in 2013 but no images were taken by the Visual Art Box. During several condition checks the object was diagnosed as being in poor or bad condition, mainly because of cloudy areas and very distinct lines in the glass. In 2023 it does still have these characteristics, but they were put in a different context. The cloudy area seems to be related to the manufacturing process (see interview with M. Barreda and D. Valkema in 2023). The lines in the glass are very likely related to the manufacturing process as well. They do appear to be in relief, as if it has something to do with the batch and the blowing process.

The results from the IC analysis show relatively low alkali concentrations. The visual characteristics seem to be related to other things than instability of the glass. It is possible that samples taken from the interior of the cuppa would show different results. This could, at some point, be further analysed.

In the two top graphs with representation of average concentrations of anions 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 indicate that this object falls within the IC-A category. The orange colour of the bar indicates that the condition was assessed as being poor during visual examination prior to sample taking. It shows that the signs visually noticed were not in line with the IC results.

Not detected: F-, NO₂-, Br-, NO₃-, PO₄-, Li+, NH₄+, Mg₂+.

Suggestions further examination or analysis

- * More information about the manufacturing process and the cloudy parts of the object
- * Compositional analysis (XRF or other) to be able to combine data from visual examination with IC data and composition info for even deeper understanding of condition.
- * further IC analysis: samples from inside the object

Condition aspects
Very poor
Poor
Good
Unknown

Examination Analysis
Likely stable
Potentially unstable
Likely unstable
Unknown