Data Ion Chromatography Analysis

Object / Record : **204 a (KN&V)**

Artist : Anoniem

Title and date : Deksel, radgravure 1675-1700

Conservator : Mandy Slager

General condition

Date: 16/09/2020

2011: *slecht, beschadigd, lacune* 2013: *slecht, glasziekte, gecrizzled en binnenzijde vochtig* , weeping, cleaned (demi:ethanol (4:!) - no images by VAB.
2017: 23 June: samples taken for IC analysis by G. Verhaar, was intended, but eventually not executed
2020: 17 sept: samples taken for IC analysis: vet oppervlak, monsteropname in strijklicht zichtbaar. Vlekken binnenzijde. Condition yellow = poor
2023: c.2 slippery inner surface, d.1.1. droplets inner surface, d.2.3 advanced crizzling outer surface, flakes coming loose many locations

Very poor

Examination and analysis

Date: 01/08/2023

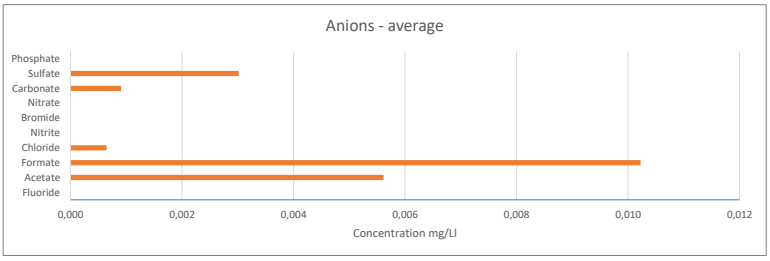
IC Analysis in 2017: no condition check at the time, samples taken by G. Verhaar, no information on location of the samples
Analysis september 2020: samples were taken from the exterior of the object for analysis by means of IC. The results show high alkali concentrations.
There has been an increase in sodium and potassium concentration from 2017 tot 2020. Potassium concentrations higher than sodium.

Likely unstable

Concentrations (mg/L)

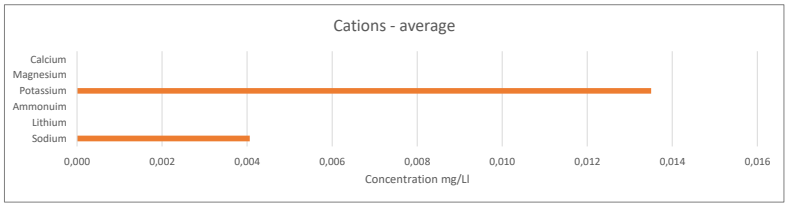
Anions

	U	Ave	SD	RSD
Fluoride	19,00	0,000	0,000	0,000
Acetate	60,05	5,616	1,007	0,179
Formate	45,02	10,224	2,143	0,210
Chloride	35,45	0,646	0,157	0,242
Nitrite	46,01	0,000	0,000	0,000
Bromide	111,96	0,000	0,000	0,000
Nitrate	62,01	0,000	0,000	0,000
Carbonate	60,01	0,907	0,413	0,456
Sulfate	96,06	3,016	0,233	0,077
Phosphate	94,97	0,000	0,000	0,000

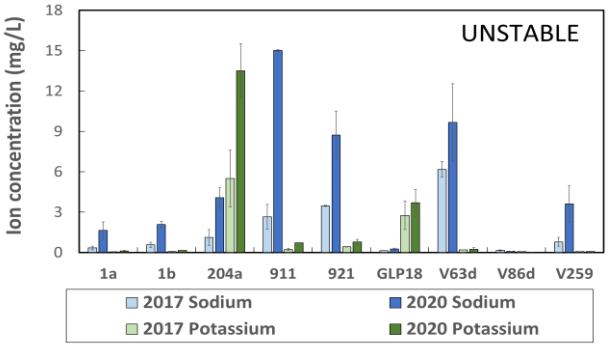


Cations

	U	Ave	SD	RSD
Sodium	22,99	4,062	0,751	0,185
Lithium	6,94	0,000	0,000	0,000
Ammonuim	18.04	0,000	0,000	0,000
Potassium	39,10	13,504	2,000	0,148
Magnesium	24,31	0,000	0,000	0,000
Calcium	40,08	0,000	0,000	0,000



Added Na and K concentrations			
Sodium	22,99	176,687	
Potassium	39,10	345,386	
Total	µmol/L	522,073	Likely unstable



Categorisation total alkaly 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 i 2013, was considered in bad condition in 2011 and 2013 and 2023. It belongs to 204b.

Relatively high concentrations of acetate, formate, chloride, sulfate and relatively high potassium concentration (See for more details the data form of 204b).

Interesting is the suflates detected on the surface. Source is unknown.

Intersting also is the fact that the outside is slippery and the inside is crizzled and flaking. The clean surface of the break at the knob has nothing to do with glass instability. This is very likely the result of an impact. Interesting to have read in TMS that this particular part weighs 346 grams. When doing research on the physical stability of crizzled glass this information might come in handy.

Suggestions further examination or analysis

* further analysis: IC analysis of the lid to see if the same as goblet 204a, xrf to determine same composition, extra analysis of similarities in condition characteristics.
* source of sulfates: research on where this might come from? * similar to GLP 18: same manufacturing techniques, same composition? art historicaly, engraving, use, fractography, ic data: should all be compared to see if there are any interesting similarities