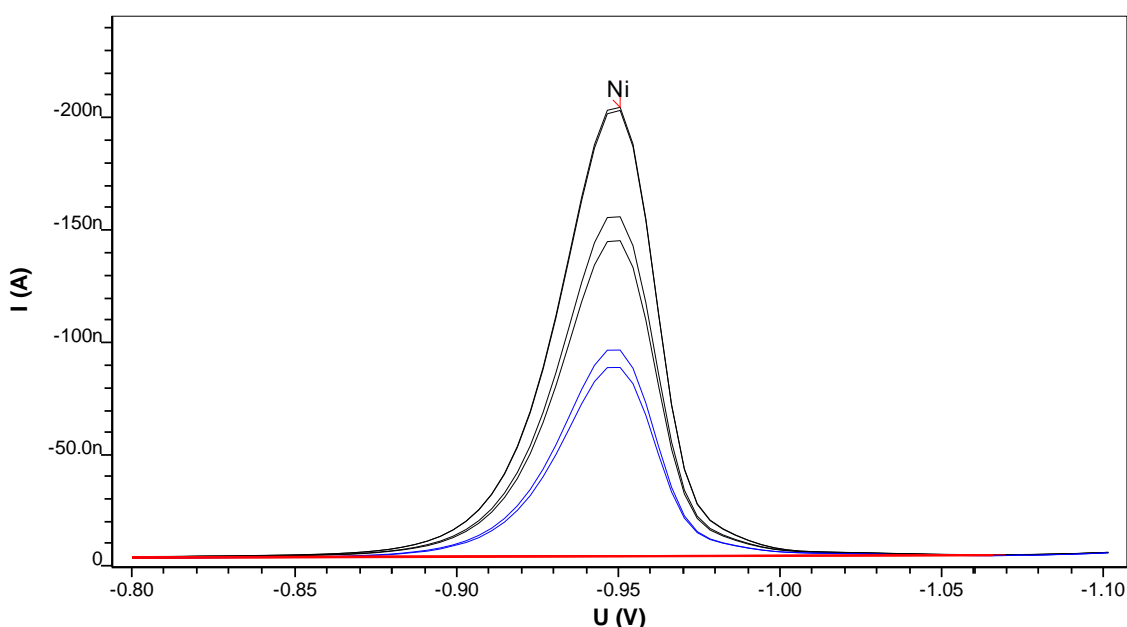


# Nickel in ethylene glycol after UV digestion



The concentration of nickel in ethylene glycol can be determined by adsorptive stripping voltammetry (AdSV) after the organic matrix is destroyed by UV digestion.

## Results

Ni in ethylene glycol

2.8 µg/g

# Method description

## Sample

Ethylene glycol

## Instruments

797 VA Computrace & 909 UV Digester



## Sample preparation

Dilution

0.5 g sample is diluted to 50 mL with ultrapure water.

UV Digestion

8 mL diluted sample, 50  $\mu\text{L}$  HCl, and 1 mL  $\text{H}_2\text{O}_2$  are pipetted into the 12 mL quartz sample vessels. The sample holder with the 12 quartz sample vessels is placed in the 909 UV Digester and irradiated at 90 °C for 120 min. After 30 min, another 1 mL  $\text{H}_2\text{O}_2$  and after 60 min again 0.5 mL  $\text{H}_2\text{O}_2$  are added into the vessel.

## Parameters 909 UV Digester

Temperature	90 °C
Irradiation time	120 min

## Electrodes

Multi-Mode Electrode pro	6.1246.120
Non-silanized capillaries	6.1226.030
Ag/AgCl/KCl (3 mol/L) reference electrode. Bridge electrolyte c(KCl) = 3 mol/L	6.0728.020 6.1245.010
Separate Pt rod electrode	6.0343.000

## Reagents

HCl	Hydrochloric acid, for trace analysis*, w(HCl) = 30%
$\text{H}_2\text{O}_2$	Hydrogen peroxide solution, for

	trace analysis*, w( $\text{H}_2\text{O}_2$ ) = 30%
$\text{NH}_4\text{Cl}$	Ammonium chloride, for trace analysis*
$\text{NH}_3$	Ammonia solution, for trace analysis*, w( $\text{NH}_3$ ) = 25%
DMG	Dimethylglyoxime disodium salt octahydrate, 97%

\*e.g., Merck suprapur®, Sigma-Aldrich TraceSelect® or equivalent.

## Solutions

Ammonia buffer pH 9.6	c( $\text{NH}_4\text{Cl}$ ) = 1 mol/L c( $\text{NH}_3$ ) = 2 mol/L
DMG solution	c(DMG) = 0.1 mol/L

## Analysis

Measuring solution	10.55 mL digestion solution + 1 mL $\text{H}_2\text{O}$ (to rinse the sample into the measuring vessel) + 0.05 mL $\text{NH}_3$ + 1 mL ammonia buffer + 0.1 mL DMG solution
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## Parameters 797 VA Computrace

Working electrode	HMDE
Stirrer speed	2000 rpm
Mode	DP
Purge time	300 s
Equilibration time	10 s
Start potential	-0.8 V
End potential	-1.1 V
Pulse amplitude	0.05 V
Pulse time	0.04 s
Voltage step	0.004 V
Voltage step time	0.4 s
Sweep rate	0.01 V/s
Peak potential Ni	-0.95 V

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