



## Application Note AN-V-213

# 用水中的

## Straightforward determination by voltammetry using a gold microwire electrode

Higher levels of copper in drinking water are usually caused by corrosive action of water leaching copper from copper pipes. While copper is an essential nutrient for the human body, ingestion of higher concentrations have an adverse effect on our health. The current World Health Organization's «Guidelines for Drinking-water Quality» recommend a maximum concentration of 2000 µg/L.

With a limit of detection (LOD) of 0.5 µg/L, anodic

stripping voltammetry is a viable, less sophisticated alternative to atomic absorption spectroscopy (AAS) for the determination of copper in drinking water. While AAS (and competing methods) can only be performed in a laboratory, anodic stripping voltammetry can be used conventionally in the laboratory or alternatively in the field with the 946 Portable VA Analyzer. The determination is carried out on the scTRACE Gold electrode.

Tap water

## EXPERIMENTAL

The scTRACE Gold is electrochemically activated prior to the first determination. In the next step, the water sample and the supporting electrolyte are pipetted into the measuring vessel. The determination is carried out with the 884 Professional VA or with the 946 Portable VA Analyzer using the parameters specified in **Table 1**. The concentration is determined by two additions of a standard addition solution.



**Figure 1.** 946 Portable VA Analyzer (scTRACE Gold version)

**Table 1.** Parameters

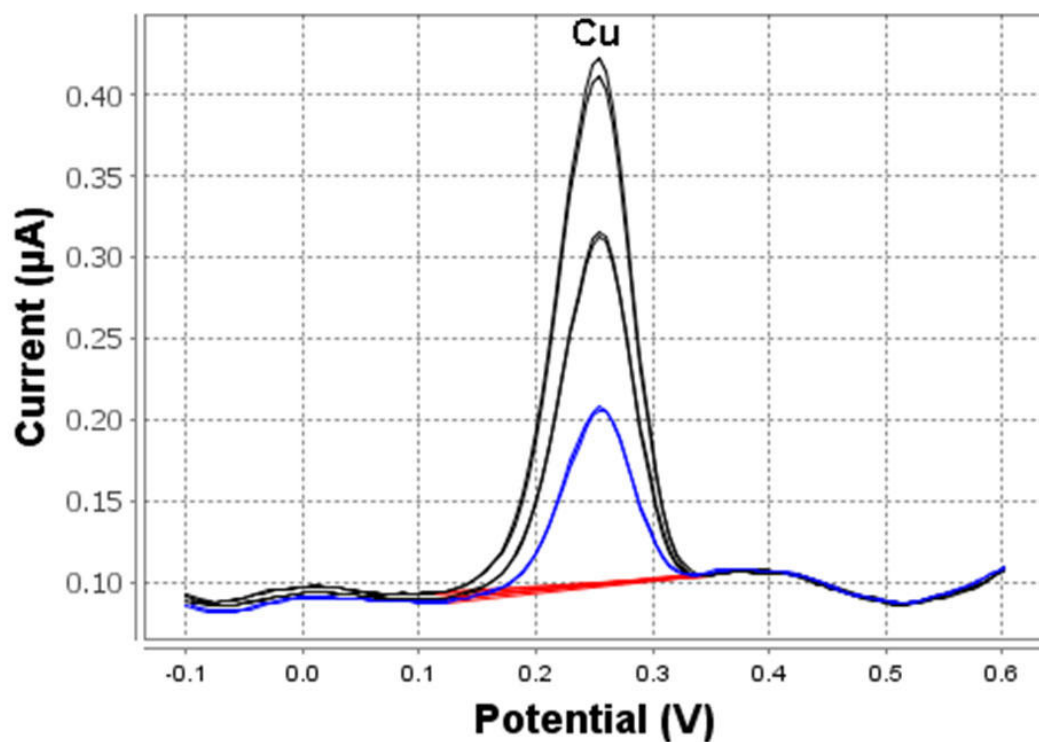
| Parameter            | Setting                 |
|----------------------|-------------------------|
| Mode                 | DP – Differential pulse |
| Deposition potential | -0.3 V                  |
| Deposition time      | 30 s                    |
| Start potential      | -0.1 V                  |
| End potential        | 0.6 V                   |
| Peak potential Cu    | 0.25 V                  |

## ELECTRODES

- scTRACE Gold

## RESULTS

The limit of detection of the method is approximately 0.5 g/L.



**Figure 3.** Determination of copper in tap water (946 Portable VA Analyzer; 30 s deposition time)

**Table 2.** Results of Cu analysis in tap water

| Sample    | Cu (g/L) |
|-----------|----------|
| Tap water | 5.1      |

## REFERENCES

Application Bulletin 429: [Determination of copper in water with the scTRACE Gold](#)

## CONTACT

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## CONFIGURATION



(MME) 884 Professional VA manual  
(MME) 884 Professional VA manual pro  
scTRACE Gold / viva ,,

,«»(CVS)«»(CPVS)(CP),

**viva**

MME() 884 Professional VA manual , pro **viva**



VA scTRACE Gold Professional VA  
, scTRACE GoldscTRACE Gold



**946 Portable VA Analyzer (scTRACE Gold)**

用于定重金属,如痕量汞、或之重金属的便携式金属分析器。scTRACE Gold 用的器版本。系由恒位和集成了拌器与可更式的独立量台成。用 Portable VA Analyzer 件。源由 USB 接口和内置的可充池提供。装在手提箱内交付,包含所有必需的附件。