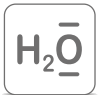


MOISTURE IN WELDING POWDER



Moisture

SUITABLE ANALYZERS

- | ELTRA CW 800 M

USED OR RECOMMENDED ACCESSORIES

- | Nickel boats (88400-0502)
- | Calcium oxalate for calibration (90700-1040)

APPLICATION SETTINGS

1. GENERAL

- | Channel (water): on
- | Alternative gas (oxygen): on
- | Base line deviation: 5 mv
- | Base line time: 10 sec

2. ANALYSIS

According to the valid AWS Standard the settings for calibration with calcium oxalate and measuring of the sample must be different.



CW 800 M

STEP	TEMPERATURE [°C]	MIN TIME [SEC]	MAX TIME [SEC]	COMPARATOR LEVEL [MV]	ADD PEAK MAX	PEAK MAX [V]
CALIBRATION	200	400	600	10	ON	8
ANALYSIS OF SAMPLES	980	60	600	10	ON	8

INTRODUCTION

Welding powder must be analyzed for moisture to avoid forming of hydrogen during the welding process. The analysis procedure is described in the AWS A4.4M:2001 (R 2006) standard from the American Welding Society. A standard compliant analysis requires the utilization of nickel boats or boats with nickel layer. Also different settings for calibration and analysis have to be applied (see above). For reliable analysis always preheated boats have to be used which have a negligible blank value. To assure a reliable analysis result for very low water concentrations always check the blank value of the boat before analysis.

SAMPEL PREPARATION

Usually no special sample preparation is required for these kind of samples.

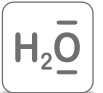
PROCEDURE

- | Prepare and clean the CW 800 M according manual and apply the settings for calibration
- | Run 1-2 Blank values to evaluate the performance of the CW 800 M
- | Apply 70-90 mg of calcium oxalate for calibration
- | Perform calibration when measured water values are plausible and repeatable
- | Apply settings for sample measurement and wait until the applied temperature of 980 ° C is stable
- | Test Blank value of used nickel boats
- | Process samples with a suitable sample weight

NOTES

- | When nickel boats show a relevant blank value, preheat them for 60-120 seconds in the 980 ° C furnace and store them in a desiccator
- | When calcium oxalate shows not repeatable results drying of the material (3hours : 80 °C) may be suitable.

MOISTURE IN WELDING POWDER

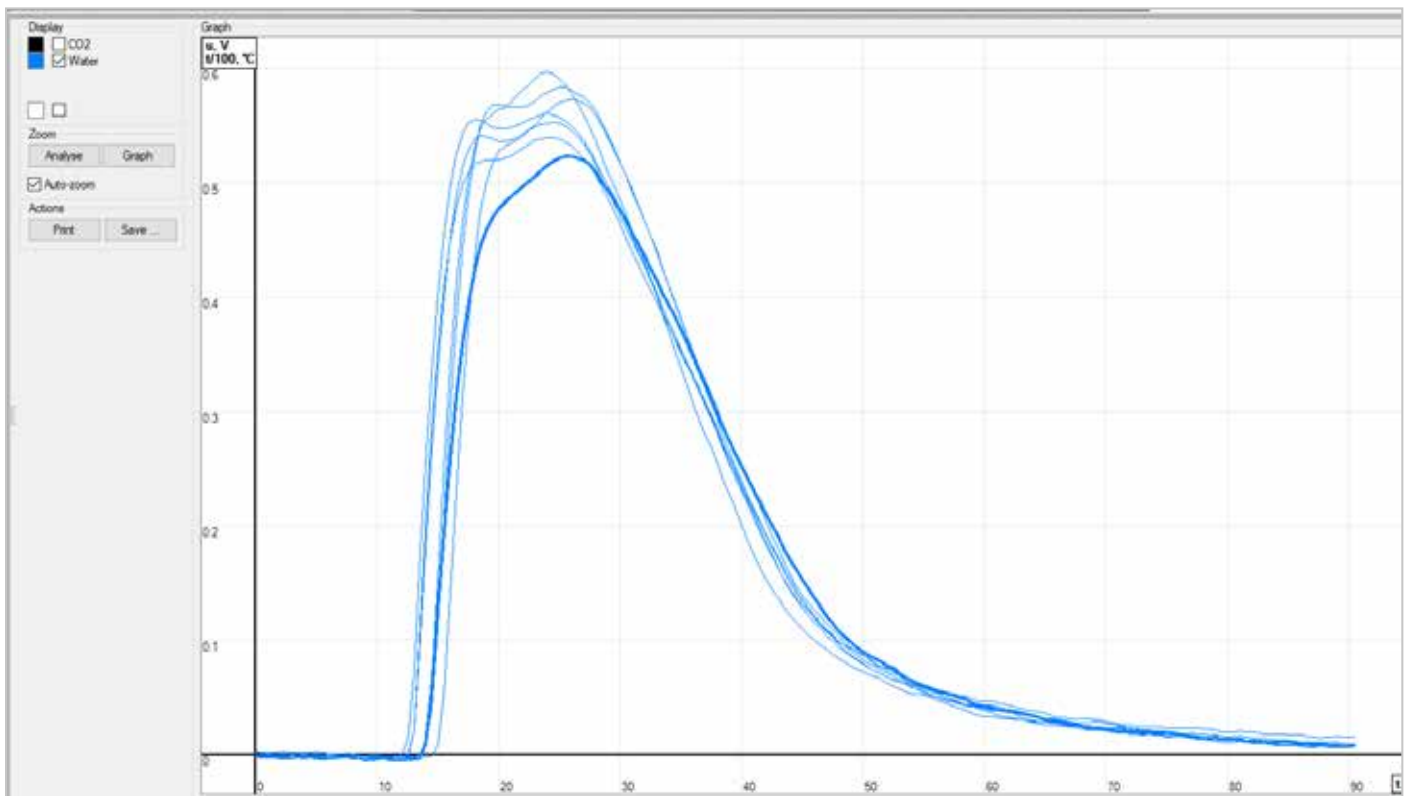


Moisture

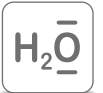
TYPICAL RESULTS

WELDING POWDER / CUSTOMER SAMPLE 1

SAMPLE WEIGHT [mg]	WATER [%]
2016	0.1031
1996	0.0980
1995	0.0102
1997	0.0967
2001	0.1015
MEAN VALUE	0.1003
STANDARD DEVIATION	0.0028
RSD [%]	2.78%



MOISTURE IN WELDING POWDER

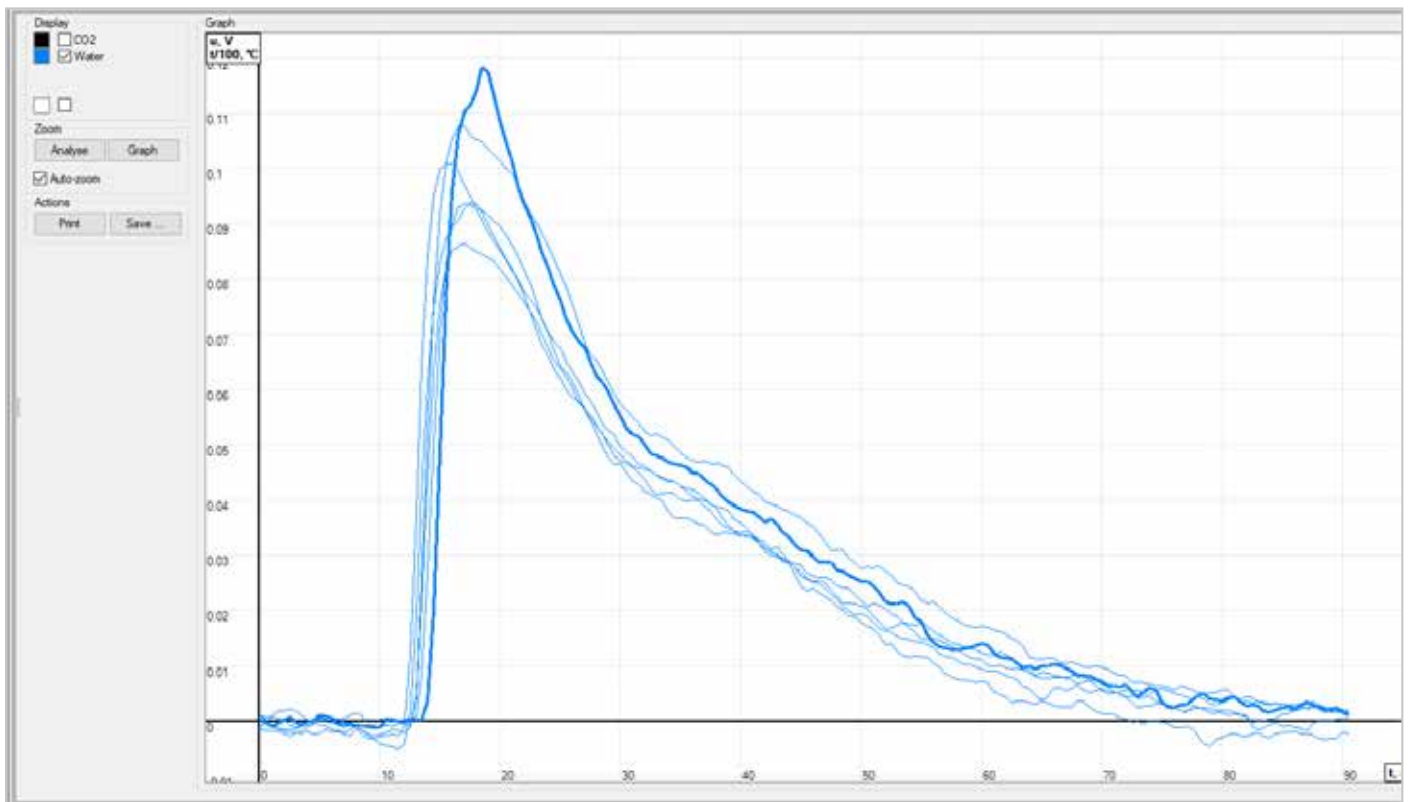


Moisture

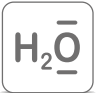
TYPICAL RESULTS

WELDING POWDER / CUSTOMER SAMPLE 2

SAMPLE WEIGHT [mg]	WATER [%]
1969	0.0172
1955	0.0151
2000	0.0147
2051	0.0181
2029	0.0146
MEAN VALUE	0.0159
STANDARD DEVIATION	0.0016
RSD [%]	9.95%



MOISTURE IN WELDING POWDER



Moisture

TYPICAL RESULTS

WELDING POWDER / CUSTOMER SAMPLE 3

SAMPLE WEIGHT [mg]	WATER [%]
2046	0.0059
1994	0.0060
2023	0.0057
2036	0.0051
2060	0.0055
MEAN VALUE	0.0056
STANDARD DEVIATION	0.0003
RSD [%]	6.41%

