

## Deutsche Akkreditierungsstelle GmbH

### Annex to the Accreditation Certificate D-PL-14179-01-00 according to DIN EN ISO/IEC 17025:2005

Period of validity: 31.03.2017 to 07.04.2020

Date of issue: 31.03.2017

Holder of certificate:

**A.M.C.O. United Samplers and Assayers GmbH**  
**Buschstraße 95, 47166 Duisburg**

Tests in the fields:

**physical and chemical determinations of ores, foundry raw materials, metal-products, ferro alloys, electroplating- and galvanizing solutions, wastewater, sulphuric acid;**  
**selected chemical determinations of coke and coal;**  
**Sampling and sample preparation of ores, foundry raw materials, metal-products, ferro alloys and solid fuels**

Abbreviations used: see last page

## 1 Sampling of ores, foundry raw materials, metal-products and ferro alloys

ISO 4552-1 1987-12	Ferro alloys; sampling and preparation for chemical analysis; Part 1: Ferrochromium, ferrosilicochromium, ferrosilicon, ferrosiliconmanganese, ferromanganese
ISO 4552-2 1987-12	Ferro alloys; sampling and preparation for chemical analysis; Part 2: Ferrotitanium, ferromolybdenum, ferrotungsten, ferroniobium, ferrovanadium
DIN 21068-1 2008-12	Chemical analysis of silicon-carbide-containing raw materials and refractory products - Part 1: General information and sample preparation
HfdE, volume 5, 55 following pages 2013	„Handbuch für das Eisenhüttenlaboratorium,, Sampling of Ferro alloys and additive metals, universal rules for sampling of heaps and diverse packing- and loading units as well as conveyor belts.

## 2 Physical determinations of ores, foundry raw materials, metal products and ferro alloys

DIN EN 15934 2012-11	Sludge, treated biowaste, soil and waste - Calculation of dry matter fraction after determination of dry residue or water content (Modification of matrix: <i>products from zinc and iron industry</i> )
HfdE, volume 5, 55 following pages 2013	Particle size analysis, sieve analysis; procedures

## 3 Chemical determination of metals and metal products of metals, alloys, metal products, zinc galvanization samples, waste water and sulphuric acid

ISO 4140 1979-09	Ferrochromium and ferrosilicochromium; Determination of Chromium content; Potentiometric method
DIN EN ISO 3815-2 2005-10	Zinc and zinc-alloys - Part 2: Analysis by inductively coupled plasma optical emission spectrometry (Determination of trace elements in zinc)

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DIN EN ISO 11885 2009-09	Water quality - determination of selected elements by inductive coupled plasma optical emission spectrometry (ICP-OES) (Modification: <i>Determination of elements in alloys, metals and additives for steel- and foundry industries as well as galvanizing samples, wastewater and sulphuric acid</i> )
DIN EN ISO 15350 2010-08	Steel and iron - Determination of total carbon and Sulphur content - Infrared absorption method after combustion in an induction furnace (routine method).
DIN EN 24159 1990-04	Ferromanganese and ferrosilicomanganese; determination of manganese content; potentiometric method
DIN 21068-2 2008-12	Chemical analysis of silicon-carbide-containing raw materials and refractory products - Part 2: Determination of loss on ignition, total carbon, free carbon and silicon carbide, total and free silica and total and free silicon
DIN 21068-3 2008-12	Chemical analysis of silicon-carbide-containing raw materials and refractory products - Part 3: Determination of nitrogen, oxygen and metallic and oxidic constituents
HfdE volume 2, p 273 2004	Determination of silicium content in ferro alloys and other metallic aggregates (volumetric method)
AM_EG.01. 2014-09	Determination of Al, Ca, Mn, Ti, Cr, Fe, Mg, Si, Ba, Bi, Zr, and V in ferro silicon, silicon carbide, metallic silicon and other melted materials by means of ICP-OES
AM_EG.17.01 2016-05	Determination of 10 trace elements in HF or HNO <sub>3</sub> dissolved pig iron by the means of ICP-OES
AM_ICP.03 (G) 2014-12	Multi-element determination (26 elements) in metal-containing solids as blast furnace dusts, zinc oxides, zinc-containing solids, filter dusts, sinters, slushes dissolved in oxidating aqua regia by the means of ICP-OES

#### 4 Sampling and selected chemical determination of coke and coal

DIN 51701-2 2006-09	Testing of solid fuels - Sampling and sample preparation - Part 2: Sampling
DIN 51701-3 2006-09	Testing of solid fuels - Sampling and sample preparation - Part 3: Sample preparation
DIN 51732 2014-07	Testing of solid mineral fuels - Determination of total carbon, hydrogen and nitrogen - Instrumental methods

#### Abbreviations used:

AM_...	inhouse-method of A.M.C.O. united samplers and assayers GmbH
DIN	Deutsches Institut für Normung (German Institute for Standardization)
EN	European Norm
HfdE	Handbuch für das Eisenhüttenlaboratorium (Manual for iron work laboratories)
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization