TECHNICAL DATA SHEET

Date of Issue: 2025/01/06

Zirconium Metal powder, Grade ZE, aqueous suspension

CAS-No.	7440-67-7
EC-No.	231-176-9
REACH No.	01-2119490102-49-0004
Molecular formula	Zr
Product number	10000385

APPLICATION

Well suited for the manufacture of transmitter tubes as an ultrapure getter material with extremely low gas formation.

SPECIFICATION

Zr + Hf total	min. 98.8 %
Zr + Hf active	min. 95.2 %
Hf	approx. 2 % (natural content)
Ca total	max. 0.5 %
N	max. 0.5 %
Si	max. 0.2 %
Ti	max. 0.15 %
H	max. 0.15 %
Cl	max. 0.05 %
Ca soluble	max. 0.05 %
C	max. 0.05 %

Al	max. 0.03 %
Fe	max. 0.03 %
Mg	max. 0.01 %

METHOD OF ANALYSIS

Verification of properties under vacuum of each lot produced. Determination of gain on ignition, particle size distribution and average particle size; spectral analysis of accompanying impurities. Zirconium content will be calculated using the numbers of the gain on ignition analysis.

PHYSICAL PROPERTIES

Appearance	suspension
Color	black to gray
Melting point/range	1,855 °C (Zirconium)
Boiling point/boiling range	3,577 °C (Zirconium)
Density	6.43 g/cm3 at 20 °C Method: OECD Test Guideline 109 (Zirconium)
Water solubility	(practically insoluble)
Grain Size	min. 99.9 % < 45 µm by sieving APS 4 +/- 1 µm acc. to Blaine
Additional Physical Properties	Ignition Point: 250 +/- 50 °C; Combustion Rate: 33 +/- 17 sec/50 cm (Albemarle standard); Specific Surface (BET): 0.6 +/- 0.2 m2/g;Gain on Ignition: min. 33.4 % (weight increase by combustion)

HANDLING & STORAGE

Handling

Highly flammable solid. Dust explosion hazard. An extremely pure, high-grade zirconium metal powder with a high metal content, evolving almost no volatile impurities in high vacuum up to 1,200°C. Keep away from flames, sparks and heat sources; use ground-connected metallic apparatus to avoid sudden ignition by electrostatic discharge; self-ignition is possible; vacuum-drying of suspensions not recommended; wear gloves, a face shield or goggles; in case of fire, cover only with sand, limestone or with a dry extinguishing powder suitable for metal fires class D; DO NOT USE WATER! Refer to our material safety data sheet and special precautionary advice for specific safety information.

TRANSPORT & PACKAGING

UN number 1358

ADR	Class: 4.1	PG: II	Label: 4.1
RID	Class: 4.1	PG: II	Label: 4.1
IMDG	Class: 4.1	PG: II	Label: 4.1
IATA_C	Class: 4.1	PG: II	Packing instruction (cargo aircraft): 448
IATA_P	Class: 4.1	PG: II	Packing instruction (passenger aircraft): 445

Hazard pictograms

Signal Word Danger

H&P Phrases See Safety Data Sheet

Labelling The labelling is according to EU-GHS classification ((EG) 1272/2008) and may vary in other countries. Please refer to the respective Safety Data Sheet for your country.

Packaging

In PE bottles max. Zr content 2.5 kg, water content min. 30 %.

OTHER INFORMATION

Further Related Documents	Safety Data Sheet