

TECHNICAL DATA SHEET

Date of Issue: 2024/03/13

Zirconium Metal powder, Grade FA Type 1, dry

CAS-No.	7440-67-7
EC-No.	231-176-9
REACH No.	01-2119490102-49-0004
Molecular formula	Zr
Product number	10001253, 10001936, 10001937, 10001938, 10001939

APPLICATION Used in numerous igniter and burning compositions for pyrotechnics.

SPECIFICATION

Zr total + Hf total	95.2 +/- 1.4 %
Zr metallic + Hf metallic	81.5 +/- 5.4 %
Hf	approx. 2 % (natural content)
Mg	max. 0.3 %
Si	max. 3 %
H	0.20 - 0.35 %
Fe	max. 0.08 %
Al	max. 0.3 %
Ti	max. 0.15 %
Ca	max. 0.05 %

The information presented herein is believed to be accurate and reliable, but is presented without guarantee or responsibility on the part of Albemarle Corporation and its subsidiaries and affiliates. It is the responsibility of the user to comply with all applicable laws and regulations and to provide for a safe workplace. The user should consider any health or safety hazards or information contained herein only as a guide, and should take those precautions which are necessary or prudent to instruct employees and to develop work practice procedures in order to promote a safe work environment. Further, nothing contained herein shall be taken as an inducement or recommendation to manufacture or use any of the herein materials or processes in violation of existing or future patent.

Technical data sheets may change frequently. You can download the latest version from our website

www.albemarle-lithium.com. Please contact us at www.albemarle-lithium.com/contact with questions.



METHOD OF ANALYSIS

Determination of oxidation value, particle size distribution, average particle size; specific surface area and combustion properties; gravimetric analysis of zirconium, verification of nitrogen content and accompanying impurities by special analytical methods.

PHYSICAL PROPERTIES

Appearance	powder
Color	dark gray
Melting point/range	1,855 °C (Information taken from reference works and the literature.)
Boiling point/boiling range	3,577 °C (Information taken from reference works and the literature.)
Density	6.434 g/cm ³ at 20 °C Method: OECD Test Guideline 109
Bulk density	1,200 - 2,300 kg/m ³
Water solubility	< 0.00005 g/l at 20 °C Method: OECD Test Guideline 29
Grain Size	min. 99.9 % < 45 µm by sieving APS 2.3 +/- 0.5 µm acc. to Blaine
Additional Physical Properties	Ignition Point: 200 +/- 30 °C Combustion Rate: 65 +/- 20 sec/50 cm (Albemarle standard) Gain on Ignition: 28.6 +/- 1.9 % (weight increase by combustion)

HANDLING & STORAGE

Handling	Highly flammable solid. Dust explosion hazard. A fine zirconium metal powder with a high specific surface area, easily ignitable and burning off at moderate speed with intense red heat. 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 safety data sheet and special precautionary advice for specific safety information!
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TRANSPORT & PACKAGING

UN number 2008

ADR	Class: 4.2	PG: I	Label: 4.2
RID	Class: 4.2	PG: I	Label: 4.2
IMDG	Class: 4.2	PG: I	Label: 4.2
IATA_C	Class: 4.2		
IATA_P	Class: 4.2		

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

Dry in tin cans of max. 5 kg capacity.

OTHER INFORMATION

Further Related Safety Data Sheet
Documents

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