

## TECHNICAL DATA SHEET

Date of Issue: 2023/02/08

# Zirconium Metal powder, Grade AB, suspended in acetone

CAS-No.	7440-67-7
EC-No.	231-176-9
REACH No.	01-2119490102-49-0004
Molecular formula	Zr
Product number	10000380, 10000381, 10001953

### APPLICATION

Zirconium powders find application in various pyrotechnic areas. They are a source of heat for squibs and ignition devices for a variety of uses including automotive airbag inflators. For the production of highly reactive and quick fuze compositions in pyrotechnics for use in ammunition, explosives, airbags and safety belt pretensioners. They are also used in manufacture of flash cubes, electronic tubes, as well as as alloying agent with other metals.

### PURITY

Zr (incl. Hf) max. 96.9 %

### SPECIFICATION

Zr total + Hf total	min. 95 %
Hf	approx. 2 % (natural content)
Ignition gain	min. 28.4 %
Burning rate	12.5 +/- 7.5 s/50 cm
Surface area (BET)	1.3 +/- 0.5 m <sup>2</sup> /g
Auto ignition temperature	235 +/- 65 °C

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

[www.albemarle-lithium.com](http://www.albemarle-lithium.com). Please contact us at [www.albemarle-lithium.com/contact](http://www.albemarle-lithium.com/contact) with questions.



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Ca	max. 0.1 %
Fe	max. 0.1 %
Al	max. 0.1 %
Mg	max. 0.5 %
H	max. 0.2 %
Average particle size (Blaine)	1.9 +/- 0.4 $\mu$ m
Particle size (by sieving)	min. 99.9 % < 45 $\mu$ m
<b>Particle size distribution (laser granulometer)</b>	<b>particle size</b> <b>% less than</b> 12 $\mu$ m    100 $\mu$ m    94
- 100 $\mu$ m	75 - 94 0.75 $\mu$ m    0 - 15

## METHOD OF ANALYSIS

Determination of ignition gain, particle size distribution, average particle size, specific surface area (BET), combustion properties, gravimetric analysis of zirconium, spectrometric determination of impurities. For specific information on our standard methods of testing see the special metals sales program.

## PHYSICAL PROPERTIES

Appearance	suspension
Color	dark gray
Melting point/range	1,855 °C (Zirconium)
Flash point	-17 °C 1,013 hPa (Acetone)
Boiling point/boiling range	56.1 °C (Acetone)
Density	6.43 g/cm <sup>3</sup> at 20 °C Method: OECD Test Guideline 109 (Zirconium)
Water solubility	< 0.00005 g/l at 20 °C Method: OECD Test Guideline 29 (Zirconium)
Additional Physical Properties	Delivery Form: packed under acetone

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## HANDLING & STORAGE

Handling	Highly flammable solid. Dust explosion hazard. An ultra-fine, high-grade zirconium powder which ignites very easily and burns extremely rapidly at white heat. Zirconium metal powder is fairly inert to most chemical reagents, but at elevated temperatures is attacked by oxidizing agents and acids. Zirconium powder is attacked by cold acid fluoride solutions. 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 is not recommended. Wear gloves, a face shield or safety goggles. In case of fire cover with dry sand or dry chemical/dolomite (powdered limestone). Never extinguish with water, carbon dioxide, or halocarbon. See our safety data sheet and special precautionary advice for more information on safety.
Storage	Store in tightly closed containers.

## TRANSPORT & PACKAGING

UN number 1308

ADR	Class: 3	PG: II	Label: 3
RID	Class: 3	PG: II	Label: 3
IMDG	Class: 3	PG: II	Label: 3
IATA_C	Class: 3	PG: II	Packing instruction (cargo aircraft): 364
IATA_P	Class: 3	PG: II	Packing instruction (passenger aircraft): 353

Hazard pictograms



Signal Word	Danger
H&P Phrases	See Safety Data Sheet

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**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**

As suspension in PE-bottles overpacked in tin cans. Zirconium content 0.1 kg - 2.5 kg, acetone content min. 30 % by weight.

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**OTHER INFORMATION**

**Further Related Documents**                      **Safety Data Sheet**

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