

# TECHNICAL DATA SHEET

Date of Issue: 2016/09/02

## Zirconium Metal powder, Grade MX, dry

CAS-No. 7440-67-7

EC-No. 231-176-9

Molecular Formula Zr

Product Number 453040

### APPLICATION

For the production of highly reactive fuzes and igniter-compositions in pyrotechnics for use in ammunition, explosives, airbags and belt pretensioners; for ignition pastes in photographic flash cubes; for getter compositions.

### FURTHER INGREDIENTS

Hafnium

CAS-No. 7440-58-6

EC-No. 231-166-4

### SPECIFICATION

(Zr + Hf)total	96.5 - 98.2 %
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(Zr + Hf)active	86.4 - 93.2 %
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Hf	approx. 2 % (natural content)
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Si	max. 0.5 %
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H	max. 0.2 %
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Al	max. 0.1 %
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Fe	max. 0.1 %
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Ca	max. 0.05 %
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### 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.

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## PHYSICAL PROPERTIES

Appearance	powder
Color	dark gray
Melting point/ range	1,852 °C
Boiling point/boiling range	3,577 °C
Density	6.5 g/cm <sup>3</sup> at 20 °C
Bulk density	1,200 - 2,300 kg/m <sup>3</sup>
Water solubility	(practically insoluble)
Additional Physical Properties	Ignition gain: 31.5 +/- 1.2 %
	Combustion rate: 14 +/- 6 s/50 cm (Albemarle standard)
	Auto ignition temperature: 180 +/- 20 °C
	Apparent density: approx. 1.4 g/ccm
	Average particle size (Blaine): 2.2 +/- 0.5 µm
	Particle size: min. 99.9 % < 45 µm

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## HANDLING & STORAGE

Handling	Highly flammable solid. Dust explosion hazard.  A fine 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 material safety data sheet and special precautionary advice for more information on safety.
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Storage                      Store in tightly closed containers.

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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

In tin cans of max. 1 kg capacity.

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## OTHER INFORMATION

Further Related                      Safety Data Sheet  
Documents

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