TECHNICAL DATA SHEET

Date of Issue: 2016/09/02

Zirconium Nickel alloy 70/30 C

Molecular Formula	ZrNi
Product Number	453441

APPLICATION

Zirconium/Nickel alloy powders find application in various pyrotechnic and ordnance areas. They are used in squibs, delay mixtures and initiators.

FURTHER INGREDIENTS

Nickel powder	
CAS-No.	7440-02-0
EC-No.	231-111-4
Zirconium powder (non pyrophoric)	
CAS-No.	7440-67-7
EC-No.	231-176-9
Hafnium	
CAS-No.	7440-58-6
EC-No.	231-166-4

SPECIFICATION

Combustion Rate:	1,400 +/- 500 sec/50 cm
Particle Size	min. 99.9 % < 45 µm
Average Particle Size	4 +/- 2 µm
Zr + Hf content	70 +/- 4 %
Ni content	30 +/- 4%
(Zr + Hf) + Ni content	> 96 %
Fe	max. 0.20 %
Ca	max. 0.15 %
Al	max. 0.15 %
S	max. 0.01 %
Cr	max. 0.50 %

Moisture	max. 0.2 %

MIL-Specification
Zirconium/Nickel alloy powder 70/30, type C is manufactured to meet the US government specification MIL-Z-11410B, Type I.

METHOD OF ANALYSIS

Gravimetric determination of zirconium and nickel. Spectral analysis of accompanying impurities. Measurement of average particle size and combustion properties.

PHYSICAL PROPERTIES

Appearance	powder
Color	black to gray
Melting point/ range	1,140 - 1,650 °C
Bulk density	2,000 - 3,000 kg/m3
Water solubility	(practically insoluble)

HANDLING & STORAGE

Handling	Highly flammable solid. Dust explosion hazard. Powders of these alloys are highly flammable and burn with intense heat. By appropriate mixing of types A and B which are comparable in their composition but quite different in regard to their combustion properties it is possible to adjust defined combustion rates. Mixtures are available upon request. Keep away from flames, sparks and heat sources. Use ground connected metallic apparatus to avoid sudden ignition by electrostatic discharge. 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.
Storage	Store in tightly closed containers.

TRANSPORT & PACKAGING

UN number 3089

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

Passenger aircraft: tin cans of 2.5 kg. Cargo aircraft only: tin cans of 5 kg. Other packaging sizes on request.

OTHER INFORMATION

Further Related Documents Safety Data Sheet