

## TECHNICAL DATA SHEET

Date of Issue: 2021/07/22

# Titanium Hydride, Grade U

CAS-No.	7704-98-5
EC-No.	231-726-8
REACH No.	01-2120760622-57-0000
Molecular formula	TiH <sub>2</sub>
Product number	10000408, 10000409, 10000410, 10001999

### APPLICATION

Titanium hydride powders find application in both pyrotechnic and metallurgical areas. They are utilized in initiator squibs and igniters. They are also used as getters in the manufacture of vacuum tubes, as brazing aids in sealing ceramics to metals, the introduction of titanium to alloys; as reservoir for pure hydrogen; as hydrogen source for foaming metals; as a deoxidizing agent and for the absorption of carbon in powder metallurgy; for the production of Ti alloys and semi-finished sintered articles; as a constituent in AlNiCo and TiCoNiAl sintered magnets; used for increasing the coercivity of FeNiCoAlCu magnets.

### SPECIFICATION

Ignition Gain	min. 58.4 %
Ti total	min. 95 %
Hydrogen	min. 3.8 %
Fe	max. 0.09 %
Cl	max. 0.06 %
Ni	max. 0.05 %
Si	max. 0.15 %

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](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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Mg	max. 0.04 %	
C	max. 0.03 %	
Specific Surface BET	n/a	
Particle Size	min. 99.9 % - 325 mesh	
Average Particle Size	5.0 +/- 1.0 µm	(acc. to BLAINE)
Auto Ignition Temperature	> 400 °C	

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## METHOD OF ANALYSIS

Determination of average particle size, particle size distribution, combustion properties and ignition gain.  
Gravimetric analysis of titanium, determination of hydrogen and impurities.

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## PHYSICAL PROPERTIES

Appearance	powder
Colour	grey to black
Melting point/range	> 400 °C (Decomposes before melting.)
Density	3.91 g/cm <sup>3</sup> at 20 °C Method: OPPTS 830.7300
Bulk density	2,500 kg/m <sup>3</sup>
Water solubility	< 0.001 g/l at 22 °C (practically insoluble)
Molecular weight	49.9 g/mol

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## HANDLING & STORAGE

**Handling** Highly flammable solid. Dust explosion hazard. Stable titanium hydride powder of high purity, yielding hydrogen at elevated temperatures in a reversible reaction; easily pressed and sintered. Like Ti metal, TiH<sub>2</sub> is resistant to most chemical reagents, but is attacked at elevated temperature by oxidizing agents and acids. TiH<sub>2</sub> is attacked by cold hydrofluoric acid solutions. Safe to handle at room temperature. At elevated temperatures and low pressures the generation of hydrogen must be considered. Risk of dust explosion. 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.

## TRANSPORT & PACKAGING

UN number 1871

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.

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## Packaging

Titanium hydride is packed in polyethylene bags overpacked in tin cans of 2.5 kg and 15 kg TiH<sub>2</sub> capacity. Other packaging sizes on request.

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## OTHER INFORMATION

Further Related Documents      Safety Data Sheet

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