

006207

November 1993

MATERIAL SAFETY DATA SHEET	Material Safety Data Sheet acc. to DIN 52 900 - 02.83 and 88/379/EWG Art. 10	70.31.01-QN015
	Tungsten, thoriated	E Rev. 0

deutsch: Sicherheitsdatenblatt; Wolfram, thoriert

<p>1 General characterization</p> <p>1.1 Chemical characterization: W + ThO₂ Tungsten, thoriated</p> <p>1.2 Hazardous Ingredients: Ingredient: Tungsten Alloying element: max. 4 % thoria</p> <p>1.3 Condition: solid</p> <p>1.4 Appearance: steel-grey to black metal</p> <p>1.5 Odor: no odor</p>	<p>3 Transport</p> <p>No special precautions needed.</p>
<p>2 Physical and safety data</p> <p>2.1 Boiling point: 5900 °C (6173 K)</p> <p>2.2 Vapour pressure: not volatile</p> <p>2.3 Vapour density: not volatile</p> <p>2.4 Solubility of water: insoluble</p> <p>2.5 Density: 19,3 g/cm³</p> <p>2.6 Percent, volatile by volume: 0</p> <p>2.7 Evaporation rate: not volatile</p> <p><u>Comments:</u> Tungsten has a high density. Powder/dusts will settle quickly.</p> <p>2.8 Flashpoint: N/A</p> <p>2.9 Flammable limits: N/A</p> <p>2.10 Others: Thoriated tungsten powder/dust e.g. grinding dust may be a weak fire and explosion hazard depending on particle size and dispersion in air.</p> <p>2.11 Reactivity data:</p> <p>2.11.1 Stability: stable</p> <p>2.11.2 Incompatibility: none known</p> <p>2.11.3 Hazardous decomposition products: WO₃-vapour at high temperatures (≥ 800 °C, 1073 K), not toxic; Th and ThO₂ fume weakly radioactive</p> <p>2.11.4 Hazardous polymerization: will not occur</p>	<p>4 Prescriptions</p> <p>No special prescriptions to take into consideration.</p> <p>5 Protection, storage and handling</p> <p>5.1 Technical protection: Ventilation: local exhaust</p> <p>5.2 Personal protection: Respiratory protection: Use respirators during grinding</p> <p>Protective gloves: not necessary</p> <p>Eye protection: safety glasses</p> <p>Other protective equipment: depending on local conditions</p> <p>5.3 Storage: if possible, avoid contact with grinding dust and smoke</p> <p>5.4 Waste disposal: Dispose of in accordance with federal, state and local laws and regulations.</p>

<p>6 Precautions in case of accidents with fire</p> <p>6.1 Spill and leak procedures: Steps to be taken in case material is spilled or released provide clean-up employees with respirators for dusty conditions (grinding dust).</p> <p>6.2 Extinguishing media: dry chemical, sand or limestone</p> <p>6.2.1 Special firefighting procedures: Use a class D dry powder extinguisher recommended for metal fires. Wear self-contained breathing apparatus. After ignition source is removed, the metal may continue to glow until complete oxidation has occurred. Cover all exposed surfaces, do not disturb until completely extinguished and allowed to cool.</p> <p>6.3 Emergency and first aid procedures: If a person breathes in large amount of dust, remove from exposure. If material gets in eyes, flush particles from eyes with water. Consult a physician.</p>	<p>7.3 Special precautions: Wash hands thoroughly after handling, before eating or smoking. Cleaning of the body at the end of the work shift. Do not shake clothing or other items to remove dust. Dust should be removed by washing or vacuuming. Separate storing of working clothes. Periodical medical examinations are recommended for individuals regularly exposed to dust and mist. Pay attention to protection of men and environment from contact with corrosion products, dust or gases and with chemical compounds of thorium, and to observation of waste disposal instructions.</p>
<p>7 Health hazard data</p> <p>7.1 Special health hazard: According to the German regulation "BGBI. 1979, No. 125 Z1997A, 13. Oct. 1976" activity ingestion of thorium-contaminated air of $4,8 \cdot 10^{-10}$ Curie/year is permitted. References available at this time do not report ill/health effects as a result of exposure to tungsten-ThO₂, provided safety regulations are observed.</p>	<p>8 Ecological data</p> <p>No special prescriptions.</p> <p>Ventilation over filter.</p>
<p>7.2 Ingredients: Thorium is a naturally occurring radioactive element, emitting primarily alpha radiation. Its decay products emit both alpha and gamma radiation. NCR exposure limit for natural thorium in air is 2×10^{-12} microcuries per ml of air (9 micrograms per m³).</p>	<p>9 Remarks</p> <p>Although reasonable care has been taken in the preparation of the information herein, extends no warranties, express or implied, makes no representations and assumes no responsibility as to the accuracy or suitability of information for application to purchaser's intended purposes or for consequences of its use. Judgements as to the suitability of information for purchaser's purposes are purchaser's responsibility.</p>

MATERIAL SAFETY DATA SHEET	Material Safety Data Sheet acc. to DIN 52 900 - 02.83 and 88/379/EWG Art. 10	70.31.01-QN012
	Tungsten, ceriated	
		E Rev. 0

deutsch: Sicherheitsdatenblatt; Wolfram, ceriert

<p>1 General characterization</p> <p>1.1 Chemical characterization: W + CeO₂ Tungsten, ceriated</p> <p>1.2 Hazardous Ingredients: Ingredient: Tungsten Alloying element: max. 2 % ceria</p> <p>1.3 Condition: solid</p> <p>1.4 Appearance: steel-grey surface</p> <p>1.5 Odor: no odor</p>	<p>3 Transport</p> <p>No special precautions needed.</p>
	<p>4 Prescriptions</p> <p>No special prescriptions to take into consideration.</p>
<p>2 Physical and safety data</p> <p>2.1 Boiling point: 5900 °C (6173 K)</p> <p>2.2 Vapour pressure: not volatile</p> <p>2.3 Vapour density: not volatile</p> <p>2.4 Solubility of water: insoluble</p> <p>2.5 Density: 19,3 g/cm³</p> <p>2.6 Percent, volatile by volume: 0</p> <p>2.7 Evaporation rate: not volatile</p> <p><u>Comments:</u> Tungsten has a high density. Powder/dusts will settle quickly.</p> <p>2.8 Flashpoint: N/A</p> <p>2.9 Flammable limits: N/A</p> <p>2.10 Others: Ceriated tungsten powder/dust e.g. grinding dust may be a weak fire and explosion hazard depending on particle size and dispersion in air.</p> <p>2.11 Reactivity data:</p> <p>2.11.1 Stability: stable</p> <p>2.11.2 Incompatibility: none known</p> <p>2.11.3 Hazardous decomposition products: WO₃-vapour at high temperatures (≥ 800 °C, 1073 K), not toxic</p> <p>2.11.4 Hazardous polymerization: will not occur</p>	<p>5 Protection, storage and handling</p> <p>5.1 Technical protection: Ventilation: local exhaust</p> <p>5.2 Personal protection: Respiratory protection: Use respirators during grinding Protective gloves: not necessary Eye protection: safety glasses Other protective equipment: depending on local conditions</p> <p>5.3 Storage: no precautions necessary</p> <p>5.4 Waste disposal: Dispose of in accordance with federal, state and local laws and regulations.</p>

<p>6 Precautions in case of accidents with fire</p> <p>6.1 Spill and leak procedures: Steps to be taken in case material is spilled or released provide clean-up employees with respirators for dusty conditions (grinding dust).</p> <p>6.2 Extinguishing media: dry chemical, sand or limestone</p> <p>6.3 Emergency and first aid procedures: If a person breathes in large amount of dust, remove from exposure. If material gets in eyes, flush particles from eyes with water. Consult a physician.</p>	<p>8 Ecological data</p> <p>No special prescriptions.</p> <p>Ventilation over filter.</p>
<p>7 Health hazard data</p> <p>7.1 Special health hazard: Reference available at this time do not report ill/health effects as a result of exposure to tungsten-CeO₂. provided safety regulations are observed.</p> <p>7.2 Hazardous mixtures of other liquids, solids or gases: Ceria belongs to the rare earth. No toxicity or other adverse health effects are known.</p>	

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<p>7 Health hazard data</p> <p>7.1 Special health hazard: Reference available at this time do not report ill/health effects as a result of exposure to tungsten, provided safety regulations are observed.</p>	<p>9 Remarks</p> <p>Although reasonable care has been taken in the preparation of the information herein, extends no warranties, express or implied, makes no representations and assumes no responsibility as to the accuracy or suitability of information for application to purchaser's intended purposes or for consequences of its use. Judgements as to the suitability of information for purchaser's purposes are purchaser's responsibility.</p>