



SAFETY DATA SHEET

SDS-780-rev1 Issue Date: 08/05/2021

TUNGSTEN CARBIDE CERAMIC SPHERES

1. IDENTIFICATION OF SUBSTANCE

1.1 PRODUCT NAME(S)	Tungsten Carbide Ceramic Spheres
1.2 PRODUCT IDENTIFIER(S)	TCCMS, TCYSZMS
1.3 INTENDED USE	Precision spherical spacer for industrial and research applications
1.4 SUPPLIER'S DETAILS	Cospheric LLC, PO Box 6762, Santa Barbara, CA 93160 info@cospheric.com www.cospheric.com
1.5 EMERGENCY TELEPHONE	+1-805-687-3747 Monday-Friday, 08:00-17:00 PST [UTC-8]

2. HAZARDS IDENTIFICATION

2.1 GHS HAZARD CLASSIFICATION

CLASSIFICATION

No health hazards are known to exist or have been reported when using this product in its original solid state for intended applications. However, grinding a Tungsten Carbide product could result in creation of dust, mist or fumes which could potentially be hazardous and are not covered by this Safety Data Sheet.

2.2 LABEL ELEMENTS

HAZARD PICTOGRAM(S)

none

SIGNAL WORD

Warning

HAZARD STATEMENTS

none

2.3 HAZARDS NOT OTHERWISE CLASSIFIED

Slippery when spilled.

PRECAUTIONARY STATEMENTS

PREVENTION

- P260** Do not breathe dust/fume.
- P264** Wash all exposed external body areas thoroughly after handling.
- P270** Do not eat, drink or smoke when using this product.
- P280** Wear protective gloves and protective clothing.
- P281** Use personal protective equipment as required.

RESPONSE

- P302+P352** If on skin: Wash with plenty of water.
- P308+P313** IF exposed or concerned: Get medical advice/attention.
- P314** Get medical advice/attention if you feel unwell.
- P333+P313** If skin irritation or rash occurs: Get medical advice/attention.

3. COMPOSITION/INFORMATION ON INGREDIENTS



SAFETY DATA SHEET

SDS-780-rev1 Issue Date: 08/05/2021

TUNGSTEN CARBIDE CERAMIC SPHERES

INGREDIENT	CAS NUMBER	% (W/W)
Tungsten Carbide	12070-12-1	>60%
Zirconium Oxide	64417-98-7	<40%
Cobalt	7440-48-4	<10%

This product is an inert inorganic solid and its properties are not identical to those of its components.

4. FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES

Eye contact	Rinse with plenty of water. Seek medical advice if symptoms persist.
Skin contact	If symptoms occur, wash with soap and water.
Inhalation	If symptoms occur, move to fresh air. Seek medical advice if necessary.
Ingestion	If symptoms occur, seek medical advice.

4.2 IMPORTANT SYMPTOMS/EFFECTS, ACUTE OR DELAYED

Inhalation of high concentrations of dust may cause respiratory irritation.

5. FIRE-FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA

Use extinguishing measures that are appropriate to local circumstances and the surrounding fire. Confining or smothering material is preferable to applying water. This product is not a fire hazard in its original solid state when used for intended applications.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

No information available.

5.3 SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Avoid formation of vapors/aerosols or dusts.
Avoid breathing vapors/aerosols or dusts.
Avoid contact with skin and eyes.
Control personal contact with the substance, by using personal protective equipment as required.

6.2 ENVIRONMENTAL PRECAUTIONS

No special action necessary.

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEAN UP

Sweep up the product to pick it up. Avoid dust formation during cleaning.
Place in a suitable, labelled container for waste disposal. Follow precautions for safe handling described in this safety data sheet (Section 8).

7. HANDLING AND STORAGE



SAFETY DATA SHEET

SDS-780-rev1 Issue Date: 08/05/2021

TUNGSTEN CARBIDE CERAMIC SPHERES

7.1 PRECAUTIONS FOR SAFE HANDLING

Avoid handling practices that cause dust, aerosols, powder, or fumes formation.
Observe occupational exposure limits and minimize the risk of inhalation of dust.
Wear protective clothing when risk of exposure occurs.
Avoid contact with skin and eyes.
Use in a well-ventilated area.
When handling, do not eat, drink or smoke.
Keep containers securely sealed when not in use.
Avoid physical damage to containers.
Always wash hands with soap and water after handling.
Use good occupational work practice.
Avoid prolonged or repeated exposure.
Further processing of solid materials may result in the formation of hazardous dusts. The potential for dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Store in tightly closed original container in a dry, cool and well-ventilated place.
Increased risk of slipping if product is spilled.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

Mechanical dry processing of the product can generate a risk of dust.

US OSHA Permissible Exposure Limits (PELs)	Inert or Nuisance Dust: Respirable Fraction	5 mg/m ³ / 15 mppcf
	Inert or Nuisance Dust: Total Dust	15 mg/m ³ / 50 mppcf
	Zirconium compounds (as Zr)	5 mg/m ³
	Cobalt metal, dust, and fume (as Co)	0.1 mg/m ³
US NIOSH Recommended Exposure Limits (RELs)	Cobalt metal dust and fume (as Co)	0.05 mg/m ³
US ACGIH Threshold Limit Values (TLV)	Tungsten and compounds, in the absence of Cobalt, as W (Respirable particulate matter)	3 mg/m ³
	Cobalt and inorganic compounds, as Co (Inhalable particulate matter)	0.02mg/m ³

8.2 ENGINEERING CONTROLS

Engineering controls are typically not required when using this product in its original solid state for intended applications. Exceptions may arise following extensive use and subsequent wear, during recycling or disposal operations. The exceptions are not covered by this Safety Data Sheet.
Avoid handling practices that cause dust formation.
Good housekeeping practices must be maintained.

8.3 INDIVIDUAL PROTECTION MEASURES (PERSONAL PROTECTIVE EQUIPMENT)



SAFETY DATA SHEET

SDS-780-rev1 Issue Date: 08/05/2021

TUNGSTEN CARBIDE CERAMIC SPHERES

Respiratory protection:	When handling practices cause dust/fumes formation, select respiratory protection appropriate for the particle size of the material and level of exposure. If risk of dust/fumes occurs, use local exhaust ventilation to prevent or control exposure.
Eye/face protection:	Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.
Skin protection:	Wear suitable protective clothing and gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Grey spherical particles
Relative density	Per product specification (typically 9-13 g/cc)
Softening Temperature	Per product specification (typically >2500 Celsius)
Flammability	Not classified as flammable.
Flammable limits	Not-applicable
Auto-ignition temperature	Not-applicable
Decomposition temperature	No information available
Odor	Odorless
Vapor pressure	Not-applicable
Vapor density	Not-applicable
pH	Not-applicable
Melting point	Not-applicable
Solubility in water	Insoluble
Initial boiling point	Not-applicable
Flash point	Not-applicable
Evaporation rate	Not-applicable
Partition coefficient	Not-applicable
Viscosity	Not-applicable

10. STABILITY AND REACTIVITY

Reactivity	Non-reactive under normal conditions of use
Chemical stability	Stable under normal conditions of use
Conditions to avoid	Contact of dust/powder with strong oxidizers may cause fire or explosion
Materials to avoid	Oxidizing agents
Hazardous decomposition	Thermal decomposition such as may occur in an extremely hot fire may release acrid smoke and irritating fumes if in dust form.



SAFETY DATA SHEET

SDS-780-rev1 Issue Date: 08/05/2021

TUNGSTEN CARBIDE CERAMIC SPHERES

11. TOXICOLOGICAL INFORMATION

Likely route(s) of exposure Dermal

The material in its original solid form used for intended application is not considered to be toxic. Heavy exposure to the dust/powder resulting from additional processing may produce chronic damages to health (not covered by this Safety Data Sheet).

SIGNS AND SYMPTOMS OF EXPOSURE

Eye contact	Direct contact with the eye may produce transient discomfort and temporary mechanical irritation. Signs and symptoms may include pain, redness.
Skin contact	Prolonged or repeated exposure may cause skin irritation.
Inhalation	Inhalation of the material in its original solid form is not likely. Acute overexposure to dust or fumes may cause respiratory tract irritation with wheezing, shortness of breath and difficulty in breathing.
Ingestion	Ingestion is not likely. Signs and symptoms may cause gastrointestinal irritation and diarrhea.

TOXICOLOGICAL DATA

Acute toxicity	No information available/not sufficient for classification
Serious eye damage/eye irritation	No information available/not sufficient for classification
Respiratory or skin sensitization	May mechanically irritate skin and mucous membrane, eyes, and respiratory tract
Germ cell mutagenicity	No information available/not sufficient for classification
Carcinogenicity	No information available/not sufficient for classification
Reproductive toxicity	No information available/not sufficient for classification
STOT-single exposure	No information available/not sufficient for classification
STOT-repeated exposure	No information available/not sufficient for classification
Aspiration hazard	No information available/not sufficient for classification

12. ECOLOGICAL INFORMATION

This material may persist in the environment for long periods. It is not expected that this product would be a hazard to the environment. For best practices, wastes resulting from use of the product should be disposed of on site or at approved waste sites.

13. DISPOSAL CONSIDERATIONS

This valuable material should be sent to an appropriate reclamation facility if available. Dispose of any waste according to prescribed federal, state, local and competent authority guidelines.

14. TRANSPORTATION INFORMATION

This product is not subject to regulations for the transport of hazardous materials (DOT, IATA, IMO).

15. REGULATORY INFORMATION

This SDS has been prepared to meet the US OSHA Hazard Communication Standard, 29 CFR 1910.1200.

16. OTHER INFORMATION



SAFETY DATA SHEET

SDS-780-rev1 Issue Date: 08/05/2021

TUNGSTEN CARBIDE CERAMIC SPHERES

The information contained in this document is correct to the best of our knowledge at the date of publication. It should not be viewed as all inclusive, but as a guide only. It does not represent any guarantee of the properties of the product. Cospheric LLC shall not be held liable for any damage resulting from handling of or from contact with the above product. For these reasons, it is important that product users carry out their own tests to satisfy themselves as to the suitability of the safety precautions for their own intended applications.

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