



Safety Data Sheet CMS HF-GUARD

Revision Date: 04/27/2026

Section 1. Identification

Product identifier

Product Identity

CMS HF-GUARD

Other means of identification

CMS HF-GUARD

High Temperature Refractory Spray Coating

Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture: Chemical intermediate for research and industrial use only

Restrictions on use: Food ingredient, cosmetic ingredient

Details of the supplier of the safety data sheet

Company Name

Comprehensive Materials Solutions LLC

480 Old Erwin Hwy

Greeneville TN 37745

United States

Customer Service:

www.castingconsulting.com

(423) 564-0101

Section 2. Hazard(s) identification

Classification of the substance or mixture under OSHA's Hazard Communication Standard (1910.1200) revised 2024 (GHS revision 7)

GHS Classification

Not a hazardous substance

These products are not classified as dangerous according to Regulation (EC) No. 1272/2008

These products are not classified according to EU Directives 67/548/EEC or 1999/45/EC

These products are not listed by NTP, IARC or regulated by OSHA as a carcinogen

These products are not classified as a dangerous substances or mixtures according to the Globally Harmonized System (GHS)

Label elements

Symbol(s) None

Signal Word None

Hazard Statements None

Precautionary Statements P261 – Avoid breathing dust / fumes / gas / mist / vapors / spray

P280 - Wear eye protection / face protection

P285 - In case of inadequate ventilation wear respiratory protection

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, If present and easy to do.

Continue rinsing.



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P302 + P352 – IF ON SKIN – Wash with soap and water

[Storage]

No GHS storage statements

[Disposal]

No GHS disposal statements

Other hazards

This product contains no PBT/vPvB chemicals.

This product contains no endocrine disrupting chemicals.

Section 3. Composition/information on ingredients

This product contains the following substances that do not present a hazard within the meaning of the OSHA's Hazard Communication Standard (1910.1200) revised 2024 (GHS revision 7).

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Aluminum oxide (non-fibrous) CAS Number: 1344-28-1 Synonyms: ALUMINUM OXIDE (AL ₂ O ₃), Alumina	10-15	Not Classified	No data available
Yttria CAS Number: 1314-36-9 Synonyms: Yttrium Oxide Y ₂ O ₃	75-90	Not Classified	No data available

The actual concentration is withheld as a trade secret.

Section 4. First aid measures

Description of first aid measures

General

In all cases of doubt, or when symptoms persist, seek medical attention.
Never give anything by mouth to an unconscious person.

Inhalation

Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes

Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin

Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion

If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed

Overview

No specific symptom data available.
Treat symptomatically. See section 2 for further details.

Eyes

May cause eye irritation.

Skin

May cause skin irritation.

Section 5. Fire-fighting measures

Extinguishing media

Recommended extinguishing media; Use fire-extinguishing media appropriate for surrounding materials.

Special hazards arising from the substance or mixture: None Known

Hazardous decomposition: No hazardous decomposition data available.

Advice for fire-fighters

As with all fires, wear positive pressure, self-contained breathing apparatus, (SCBA) with a full face piece and protective clothing. Persons without respiratory protection should leave area.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

Methods and material for containment and cleaning up

Sweep up or pick up.

Section 7. Handling and storage

Precautions for safe handling

Handle containers carefully to prevent damage and spillage.

Avoid contact with skin and eyes. Do not breathe dust. Avoid dust formation. Provide local exhaust or general room ventilation to minimize exposure to dust. Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and when leaving work.

See section 2 for further details. - [Prevention]

Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store in a dry, well-ventilated place.

Incompatible materials: No data available.

See section 2 for further details. - [Storage]

Specific end use(s)

No data available.

Section 8. Exposure controls / personal protection

Control parameters

Exposure

CAS No.	Ingredient	Source	Value
1344-28-1	Aluminum oxide (non-fibrous)	OSHA	TWA 15 mg/m ³ (total) TWA 5 mg/m ³ (resp)
		ACGIH	No Established Limit
		NIOSH	No established RELs
1314-36-9	Yttrium Oxide	OSHA	TWA 1 mg/m ³
		ACGIH	TWA 1 mg/m ³
		NIOSH	TWA 1 mg/m ³

Exposure controls

Respiratory

If workers are exposed to concentrations above the exposure limit, they must use the appropriate, certified respirators.

Eyes

Wear safety glasses with side shields to protect the eyes. An eye wash station is suggested as good workplace practice.

Skin

Wear PVC or rubber gloves to keep skin contact to a minimum. Refer to the manufacturer's recommendations regarding the suitability of any gloves used.

Engineering Controls

Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.

Other Work Practices

Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details.

Section 9. Physical and chemical properties

Information on basic physical and chemical properties

Physical State

Aqueous Suspension

Color

Blue/Purple

Odor

No data available.

Melting point / freezing point

Melting point: >1700 °C Freezing point: <0 °C

Initial boiling point

>110 °C

Flammability (solid, gas)

Not Applicable

Upper/lower flammability or explosive limits

Lower Explosive Limit: Not Available

Upper Explosive Limit: Not Available

Flash Point

Not Available

Auto-ignition temperature

Not Available

Decomposition temperature

Not Available

pH

Not Available

Viscosity (cSt)

Not Available

Vapor pressure (Pa)

Not Available



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Relative Density	2.53 g/cc
Vapor Density	Not Available
Particle Characteristics	Not Available
Evaporation rate (Ether = 1)	Not Available
VOC Content	Not Available
Refractive Index	Not Available

Other information

No other relevant information.

Section 10. Stability and reactivity

Reactivity

Hazardous Polymerization will not occur.

Chemical stability

Stable under normal circumstances.

Possibility of hazardous reactions

No data available.

Conditions to avoid

No data available.

Incompatible materials

No data available.

Hazardous decomposition products

No hazardous decomposition data available.

Section 11. Toxicological information

Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Aluminum oxide - (1344-28-1)	> 15,900.00, Rat - Category: NA	No data available.	No data available.	> 0.89, Rat - Category: NA	No data available.
Yttrium oxide - (1314-36-9)	> 5,000, (Yttrium oxide), Rat	No skin irritation	No data available.	No data available.	No data available.

Carcinogen Data

CAS No.	Ingredient	Source	Value
1344-28-1	Aluminum oxide	OSHA	Regulated Carcinogen: No;
		NTP	Known: No; Suspected: No;
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No;
		ACGIH	No Established Limit
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No;
		ACGIH	No Established Limit
1314-36-9	Yttrium oxide	All	None Known

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	No skin irritation
Serious eye damage/irritation	---	Not Applicable
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

Possible routes of entry: No data available.

Symptoms and effects, both acute and delayed:

No specific symptom data available.

Treat symptomatically.

Eyes Mild eye irritant

Skin No skin irritation

Section 12. Ecological information



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Toxicity

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/L	48 hr EC50 crustacea, mg/L	ErC50 algae, mg/L
Aluminum oxide - (1344-28-1)	114.97, Channa marulius	1.90, Ceriodaphnia dubia	0.57, Pseudokirchneriella subcapitata
Yttrium Oxide – (1314-36-9)	No data available	No data available	No data available

Persistence and degradability

There is no data available on the preparation itself.

Bioaccumulative potential

Not Available

Mobility in soil

No data available.

Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

Other adverse effects

No data available.

Section 13. Disposal considerations

Waste treatment methods

Waste should not be released to sewers. Observe all federal, state, and local regulations when disposing of this substance.

Section 14. Transport information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
UN number	Not Regulated	Not Regulated	Not Regulated
UN proper shipping name	Not Regulated	Not Regulated	Not Regulated



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Transport hazard class(es)	DOT Hazard Class: Not Applicable Sub Class: Not Applicable	IMDG: Not Applicable Sub Class: Not Applicable	Air Class: Not Applicable Sub Class: Not Applicable
Packing group	Not Applicable	Not Applicable	Not Applicable
Environmental hazards	Marine Pollutant: No;		
Special precautions for user	Not Applicable		

Section 15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Classification of the substance or mixture under OSHA's Hazard Communication Standard (1910.1200) revised 2024 (GHS revision 7)

Toxic Substance Control Act (TSCA)

CAS Number	Ingredient	Toxic Substance Control Act (TSCA)	Comments	Status
1344-28-1	Aluminum Oxide	No		NA
1314-36-9	Yttrium Oxide	No		NA

EPCRA 313 Toxic Chemicals:

None

Proposition 65 - Carcinogens (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 Label Warning:

This product contains no chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Section 16. Other information



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The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

Disclaimer: The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

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