SAFETY DATA SHEET
Revision date: 03/13/2020

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

1.1 PRODUCT IDENTIFIER
Product Name: Enduramark Diamond Dust Laser Marking Paste
Product Code: LMS-DD

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST
Coating used for Laser Marking; Industrial Use Only

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

MANUFACTURED BY:	VV Materials, LLC (DBA: Enduramark)
DIVISION:	Material Science
ADDRESS:	14101 W. Hwy 290 STE 1800 Austin, TX 78737

1.4 EMERGENCY TELEPHONE NUMBER

CHEMTREC PHONE:	800-424-9300
PRODUCT INFORMATION:	512-236-6424

CAS No: **Mixture**

Date of Preparation **5/31/2017**

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335 For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Signal Word- **Danger**

Hazard statement(s)
H225 Highly Flammable Liquid
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P223 Keep container tightly close
P241 Use explosion-proof electrical/ventilation/lighting/equipment
P242 Use only non-sparking tools
P243 Take precautionary measures against static discharge
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.
P281 Use personal protective equipment as required
P303 + P361 + P353 If on skin (or hair): Take of all contaiminated clothing. Rinse skin with water/shower
P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol resistant foam to extinguish.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS – none

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS #	Concentration
Proprietary Hydrated Bismuth Magnesium Silicate	N/A	>=1 - <75%
Ethanol	64-17-5	>=1 - <55%

Specific chemical identities are being withheld as a trade secret (29 CFR 1910.1200)

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes. Consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed
No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media
Dry powder, Dry sand.

Unsuitable extinguishing media
Do NOT use water.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid formation of dust. Avoid breathing vapors, mist, dust or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Evacuate personnel to safe areas. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Use personal protective equipment. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, properly labeled and closed containers for disposal. Dispose according to local/national regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapors, mist or gas. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. Use explosion-proof equipment. Keep away from sources of ignition – No smoking. Take measures to prevent the build-up of electrostatic charge. For precautions see section 2.2.

7.2 Advice on protection against fire and explosions
Keep container tightly closed in a dry and well-ventilated place. Keep in properly labeled containers. Containers that are opened must be carefully resealed and kept upright.

7.3 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.4 Specific End Use
Apart from the uses mentioned in section 1, no other specific uses are stipulated.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Component	CAS-No.	Value	Control Parameters	Basis
Ethanol	64-17-5	TWA	1,000 ppm 1,900 mg/m3	USA. OSHA – Table Z-1 Limits for Air Contaminants – 1910.1000
		TWA	1,000 ppm 1,900 mg/m3	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
	Remarks	The value in mg/m3 is approximate.		
		STEL	1,000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		TWA	1,000 ppm 2,400 mg/m3	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
		Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans		
		TWA	1,000 ppm 1,900 mg/m3	USA. NIOSH Recommended Exposure Limits
		PEL	1,000 ppm 1,900 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Proprietary Hydrated Bismuth Magnesium Silicate		TWA	0.50 mg/m^3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

8.2 Exposure Controls

Appropriate engineering controls
Showers, eyewash stations, ventilation systems. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Eye/face protection
Safety glasses with side-shields and face-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Wear protective clothing. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm

Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Body Protection
Impervious clothing, flame-resistant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate, use a full-face particle respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Respiratory protection must be provided in accordance with current local regulations.

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: powder Colour: White to Off-White
b) Odor	No data available
c) Odor Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	No data available
f) Initial boiling point	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or exposure limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	No data available
n) Water solubility 1 g/l at 20 °C (68 °F)	No data available
o) Partition coefficient: noctanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapors may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents, strong acids, rubber, various plastics.

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions - molybdenum oxides, aluminum oxides, silicon oxides, bismuth oxides, carbon oxides.
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 TOXICOLOGICAL INFORMATION:

Acute toxicity
No data available.

Skin corrosion/irritation
No data available.

Serious eye damage/eye irritation
No data available.

Respiratory or skin sensitisation
No data available.

Germ cell mutagenicity
No data available.

Carcinogenicity
No data available.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

SECTION 12: ECOLOGICAL INFORMATION

12.1 ECOLOGICAL INFORMATION:

Toxicity
No data available.

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects
No data available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 WASTE DISPOSAL METHOD:

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste-disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Dispose in accordance with Federal, State and Local regulations.

Contaminated packaging
Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

14.1 TRANSPORT INFORMATION

UN/ID No:	UN1263
Proper shipping name:	Flammable liquid
Hazard Class:	3
Description:	UN1263, flammable liquid, 3
Packing Group:	2

SECTION 15: REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313: Molybdenum trioxide, CAS-No. 1313-27-5

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard, Fire Hazard

California Prop. 65 Components
This product can potentially expose you to chemicals, including Crystalline Silica/Quartz, which are known to the State of California to cause cancer. For more information go to P65Warnings.ca.gov.

Massachusetts Right to Know Components
Ethanol

Pennsylvania Right to Know Components
Molybdenum trioxide, Ethanol

New Jersey Right to Know Components
Ethanol

SECTION 16: OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. VV Materials, LLC, and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.