

PMMA

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

Revision Date: 12/01/2015

Rev 1

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Mixture

Product Name: PMMA Materials

Intended Use of the Product

Dental fabrications.

Name, Address, and Telephone of the Responsible Party

Company

Jensen Industries Inc.
50 Stillman Road
North Haven, CT 06473
T 1-800-243-2000

Emergency Telephone Number

Emergency Number (USA & Canada Only): CHEMTREC 1-800-424-9300

Emergency Number (All other Countries): 203-239-2090

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

GHS-US classification

Not classified

Label Elements

GHS-US Labeling This product is a medical device and is therefore not subject to the labeling requirements of the 29 CFR 1910.1200.

Other Hazards

As a solid disc and block, this product does not present the same hazards as the individual components. The components in their powdered form present various physical and health hazards. Exposure to dust generated from processing is sensitizing, suspected of causing cancer, and present a combustible dust hazard. Avoid generating dust. Much of the information provided in this SDS is for situations of use in which hazardous exposures may occur, such as dental milling. Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

Methyl methacrylate: Is a liquid monomer, one of the components involved in the polymerization process of PMMA. Potential hazards associated with methyl methacrylate are the following: May cause irritation to the upper respiratory, skin, throat, and eyes; dermatitis; pulmonary edema (an abnormal build-up of fluid in the air sacs of the lungs).

Titanium Dioxide: Irritation to the lower respiratory tract.

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product Identifier	% (w/w)	GHS-US classification
Methyl methacrylate polymer	(CAS No) 9011-14-7	96 - 97	Comb. Dust
2-Propenoic acid, 2-methyl-, 1,2-ethanediyl ester	(CAS No) 97-90-5	2	Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Acute 3, H402
Titanium dioxide	(CAS No) 13463-67-7	< 0.1, 0.1 - 1	Carc. 2, H351
Methyl methacrylate	(CAS No) 80-62-6	1	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2B, H320 Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Acute 3, H402

Full text of H-phrases: see section 16

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A range of concentration as prescribed by the Controlled Products Regulations has been used where necessary, due to varying composition.

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice.

Inhalation: When symptoms occur: go into open air and ventilate suspected area.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Seek medical attention immediately if irritation develops or persists.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Obtain medical attention if irritation persists.

Ingestion: Rinse mouth. Do NOT induce vomiting.

Most Important Symptoms and Effects Both Acute and Delayed

General: May cause an allergic skin reaction. Suspected of causing cancer (inhalation).

Inhalation: May cause respiratory irritation.

Skin Contact: May cause an allergic skin reaction. Symptoms may include: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Eye Contact: Eye contact with dust may cause mechanical irritation.

Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: Suspected of causing cancer (inhalation).

Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂).

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Combustible Dust.

Explosion Hazard: Dust explosion hazard in air.

Reactivity: Hazardous reactions will not occur under normal conditions.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Nitrogen oxides. Ammonia.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid prolonged contact with eyes, skin and clothing. Avoid breathing dust. Avoid generating dust. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

Environmental Precautions

Prevent entry to sewers and public waters.

Methods and Material for Containment and Cleaning Up

For Containment: Contain and collect as any solid.

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Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Avoid actions that cause dust to become airborne during clean-up such as dry sweeping or using compressed air. Use HEPA vacuum or thoroughly wet with water to clean-up dust. Use PPE described in Section 8. Keep in suitable, closed containers for disposal. Contact competent authorities after a spill.

Reference to Other Sections

See Section 13, Disposal Considerations. See Section 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion. Keep dust levels to a minimum and follow applicable regulations.

Precautions for Safe Handling: Do not breathe dust. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Avoid creating or spreading dust. Use explosion-proof electrical, ventilating, lighting equipment. Proper grounding procedures to avoid static electricity should be followed.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Store locked up.

Incompatible Materials: Strong acids. Caustic products. Strong oxidizers.

Specific End Use(s)

Dental fabrications.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Methyl methacrylate (80-62-6)		
Mexico	OEL TWA (mg/m ³)	410 mg/m ³
Mexico	OEL TWA (ppm)	100 ppm
Mexico	OEL STEL (mg/m ³)	510 mg/m ³
Mexico	OEL STEL (ppm)	125 ppm
USA ACGIH	ACGIH TWA (ppm)	50 ppm
USA ACGIH	ACGIH STEL (ppm)	100 ppm
USA ACGIH	ACGIH chemical category	dermal sensitizer, Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m ³)	410 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	100 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	410 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	100 ppm
USA IDLH	US IDLH (ppm)	1000 ppm
Alberta	OEL STEL (mg/m ³)	410 mg/m ³
Alberta	OEL STEL (ppm)	100 ppm
Alberta	OEL TWA (mg/m ³)	205 mg/m ³
Alberta	OEL TWA (ppm)	50 ppm
British Columbia	OEL STEL (ppm)	100 ppm
British Columbia	OEL TWA (ppm)	50 ppm
Manitoba	OEL STEL (ppm)	100 ppm
Manitoba	OEL TWA (ppm)	50 ppm
New Brunswick	OEL TWA (mg/m ³)	410 mg/m ³
New Brunswick	OEL TWA (ppm)	100 ppm
Newfoundland & Labrador	OEL STEL (ppm)	100 ppm
Newfoundland & Labrador	OEL TWA (ppm)	50 ppm
Nova Scotia	OEL STEL (ppm)	100 ppm

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Nova Scotia	OEL TWA (ppm)	50 ppm
Nunavut	OEL STEL (mg/m ³)	510 mg/m ³
Nunavut	OEL STEL (ppm)	125 ppm
Nunavut	OEL TWA (mg/m ³)	410 mg/m ³
Nunavut	OEL TWA (ppm)	100 ppm
Northwest Territories	OEL STEL (ppm)	100 ppm
Northwest Territories	OEL TWA (ppm)	50 ppm
Ontario	OEL STEL (ppm)	100 ppm
Ontario	OEL TWA (ppm)	50 ppm
Prince Edward Island	OEL STEL (ppm)	100 ppm
Prince Edward Island	OEL TWA (ppm)	50 ppm
Québec	VEMP (mg/m ³)	205 mg/m ³
Québec	VEMP (ppm)	50 ppm
Saskatchewan	OEL STEL (ppm)	100 ppm
Saskatchewan	OEL TWA (ppm)	50 ppm
Yukon	OEL STEL (mg/m ³)	510 mg/m ³
Yukon	OEL STEL (ppm)	125 ppm
Yukon	OEL TWA (mg/m ³)	410 mg/m ³
Yukon	OEL TWA (ppm)	100 ppm
Titanium dioxide (13463-67-7)		
Mexico	OEL TWA (mg/m ³)	10 mg/m ³
Mexico	OEL STEL (mg/m ³)	20 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (total dust)
USA IDLH	US IDLH (mg/m ³)	5000 mg/m ³
Alberta	OEL TWA (mg/m ³)	10 mg/m ³
British Columbia	OEL TWA (mg/m ³)	10 mg/m ³ (total dust) 3 mg/m ³ (respirable fraction)
Manitoba	OEL TWA (mg/m ³)	10 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	10 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	10 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	10 mg/m ³
Nunavut	OEL TWA (mg/m ³)	5 mg/m ³ (respirable mass) 10 mg/m ³ (total mass)
Northwest Territories	OEL STEL (mg/m ³)	20 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	10 mg/m ³
Ontario	OEL TWA (mg/m ³)	10 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	10 mg/m ³
Québec	VEMP (mg/m ³)	10 mg/m ³ (containing no Asbestos and <1% Crystalline silica-total dust)
Saskatchewan	OEL STEL (mg/m ³)	20 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	10 mg/m ³
Yukon	OEL STEL (mg/m ³)	20 mg/m ³
Yukon	OEL TWA (mppcf) OEL TWA (mg/m ³)	30 mppcf 10 mg/m ³

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Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits. Power equipment should be equipped with proper dust collection devices. Proper grounding procedures to avoid static electricity should be followed. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Ensure all national/local regulations are observed.

Personal Protective Equipment: Protective goggles. Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Wear suitable protective clothing.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical goggles or safety glasses.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Varied
Odor	: None
Odor Threshold	: Not available
pH	: Not available
Evaporation Rate	: Not available
Melting Point	: $\approx 160\text{ }^{\circ}\text{C}$ ($\approx 320\text{ }^{\circ}\text{F}$)
Freezing Point	: Not available
Boiling Point	: Not available
Flash Point	: $> 250\text{ }^{\circ}\text{C}$ ($> 482\text{ }^{\circ}\text{F}$)
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20 °C	: Not available
Relative Density	: Not available
Specific gravity / density	: 1.17 g/cm^3
Specific Gravity	: Not available
Solubility	: Insoluble in water
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available
Explosion Data – Sensitivity to Mechanical Impact	: Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	: Static discharge could act as an ignition source.
VOC content	: None

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SECTION 10: STABILITY AND REACTIVITY

Reactivity: Hazardous reactions will not occur under normal conditions.

Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

Possibility of Hazardous Reactions: Hazardous polymerization will not occur. During thermal decomposition vapors from methyl methacrylate may form, causing irritation to the eyes and respiratory system.

Conditions to Avoid: Direct sunlight, extremely high or low temperatures, and incompatible materials. Sparks, heat, open flame and other sources of ignition. Generation of airborne dust.

Incompatible Materials: Strong acids. Caustic products. Strong oxidizers.

Hazardous Decomposition Products: Carbon oxides (CO, CO₂).

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: May cause an allergic skin reaction.

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not classified

Carcinogenicity: Suspected of causing cancer.

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: May cause respiratory irritation.

Symptoms/Injuries After Skin Contact: May cause an allergic skin reaction. Symptoms may include: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Eye contact with dust may cause mechanical irritation.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: Suspected of causing cancer (inhalation).

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

2-Propenoic acid, 2-methyl-, 1,2-ethanediyl ester (97-90-5)	
LD50 Oral Rat	3300 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
Methyl methacrylate (80-62-6)	
LD50 Oral Rat	7900 mg/kg
LC50 Inhalation Rat	29 mg/l/4h
LC50 Inhalation Rat	4632 ppm/4h
Titanium dioxide (13463-67-7)	
LD50 Oral Rat	> 10000 mg/kg
Methyl methacrylate polymer (9011-14-7)	
IARC Group	3
Methyl methacrylate (80-62-6)	
IARC Group	3
Titanium dioxide (13463-67-7)	
IARC Group	2B
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.

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SECTION 12: ECOLOGICAL INFORMATION

Toxicity

2-Propenoic acid, 2-methyl-, 1,2-ethanediyl ester (97-90-5)	
EC50 Daphnia 1	44.9 mg/l (Exposure Time: 48 h - Species: Daphnia magna)
ErC50 (algae)	19 mg/l (Exposure Time: 96 h - Species: Pseudokirchnerella subcapitata)
NOEC chronic crustacea	5.05 mg/l (Species: Daphnia magna)
Methyl methacrylate (80-62-6)	
LC50 Fish 1	243 - 275 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	69 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	125.5 - 190.7 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])

Persistence and Degradability

PMMAZ-PMMA	
Persistence and Degradability	Not established.

Bioaccumulative Potential

PMMAZ-PMMA	
Bioaccumulative Potential	Not established.

Methyl methacrylate (80-62-6)	
Log Pow	0.7

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Ecology – Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

In Accordance with DOT Not regulated for transport

In Accordance with IMDG Not regulated for transport

In Accordance with IATA Not regulated for transport

In Accordance with TDG Not regulated for transport

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

PMMAZ-PMMA	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

Methyl methacrylate polymer (9011-14-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

2-Propenoic acid, 2-methyl-, 1,2-ethanediyl ester (97-90-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

Methyl methacrylate (80-62-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Subject to reporting requirements of United States SARA Section 313	

SARA Section 313 - Emission Reporting	1.0 %
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Titanium dioxide (13463-67-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard
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US State Regulations

Titanium dioxide (13463-67-7)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of

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California to cause cancer.

Methyl methacrylate (80-62-6)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Titanium dioxide (13463-67-7)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Canadian Regulations

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WHMIS Classification	Uncontrolled product according to WHMIS classification criteria This product is considered a medical device and is subject to the regulations of the Food and Drugs Act.
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Methyl methacrylate polymer (9011-14-7)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
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2-Propenoic acid, 2-methyl-, 1,2-ethanediyl ester (97-90-5)

Listed on the Canadian DSL (Domestic Substances List)

Methyl methacrylate (80-62-6)

Listed on the Canadian DSL (Domestic Substances List)

Listed on the Canadian IDL (Ingredient Disclosure List)

IDL Concentration 1 %

WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects
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Titanium dioxide (13463-67-7)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects
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This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 12/01/2015
Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Carc. 2	Carcinogenicity Category 2
Comb. Dust	Combustible Dust
Eye Irrit. 2B	Serious eye damage/eye irritation Category 2B
Flam. Liq. 2	Flammable liquids Category 2
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H225	Highly flammable liquid and vapor
	May form combustible dust concentrations in air
H315	Causes skin irritation
H317	May cause an allergic skin reaction

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H320	Causes eye irritation
H335	May cause respiratory irritation
H351	Suspected of causing cancer
H402	Harmful to aquatic life

Party Responsible for the Preparation of This Document

Jensen Industries

T 1-800-243-2000

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

NA GHS SDS