SAFETY DATA SHEETS

This SDS packet was issued with item:

075355912

The safety data sheets (SDS) in this packet apply to the individual products listed below. Please refer to invoice for specific item number(s).

075347810 075347828 075347836 075347844 075347851 075348578 075348586 075348594 075348602 075348610
075348628 075355490 075355706 075355714 075355730 075355748 075355755 075355763 075355805 075355813
075355839 075355847 075355854 075355862 075355904 075355920 075355938 075355946 075355953 075355961

The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).

075347802 075348370 075348388 075348396 075348404 075348412 075348420 075348438

Material Safety Data Sheet SLEDGEHAMMER®

Self Cure Powder

Section I - Product and Company Identification

Product Name: SLEDGEHAMMER SELF CURE DENTAL ACRYLIC POWDER
Chemical Name: Polymethylmethacrylate

Family: Acrylic Polymer

Manufacturer: KEYSTONE RESEARCH & PHARMACEUTICAL
616 Hollywood Avenue
Cherry Hill, NJ 08002

Product Use: Dental Polymer
Formula: Proprietary Formulation

Emergency Phone Numbers: (800) 535 - 5053
Information Contacts: (856) 663 - 4700

Product Number – 1000482, 1000483, 1000484, 1000485, 1000486, 1000487, 1000488, 1000489, 1000490, 1000507, 1000508, 1000509, 1000510, 1000511, 1000512, 1000513, 1000514, 1000515, 1000539, 1000540, 1000541, 1000547, 1000548, 1000549, 1001950, 1001952, 1001970, 1001971, 1001972, 1001973, 1001974, 1001975

Section II - Hazardous Ingredients

Chemical Identity	CAS Numbers	Exposure Limits OSHA TWA/STEL	ACGIH TWA/STEL	Carcinogen IARC/NTP/OSHA
Residual Monomer	N/R	N/R	N/R	N/E
Diethyl Phthalate	84 - 66 - 2	5 mg/m3	5 mg/m3	N/E
Benzoyl Peroxide	94 - 36 - 0	5 mg/m3	5 mg/m3	N/E
Titanium Dioxide	13453 - 67 - 7	15 mg/m3	10 mg/m3	N/E

N/E - None Established N/A - Not Applicable N/DA - No Data Available N/R - Not Reviewed

Section III - Hazards Identification

EMERGENCY OVERVIEW

- Free flowing powder
- Considered a nuisance dust.
- Can cause eye/skin irritation.
- Polymer dust is combustible .
- Decomposition products include Methyl Methacrylate and Carbon Monoxide.

Potential Health Effects, Signs and Symptoms of Exposure:

Primary Route of Entry: Eyes or skin (No absorption); inhalation of dust .

Eye: Higher concentration can irritate eyes. May cause eye irritation or damage

Skin: Repeated or prolonged exposure may cause allergic skin rashes.

Ingestion: Higher concentration can irritate respiratory system .

Inhalation: Possible temporary discomfort due to inhalation of dust concentration above the permissible exposure limit. Dust may cause irritation of the nose , throat , and lungs.

Sub-Chronic Effects

Target Organs: For Polymer: None Listed. For Decomposition Product, Methyl Methacrylate Monomer: Nose, Liver and Kidneys. For Diethyl Phthalate: None Listed. For Benzoyl Peroxide: None Listed. For Titanium Dioxide: None Listed.

Threshold Limit Value (Tlv): For Polymer: NE. For Decomposition Product, Methyl Methacrylate Monomer: 100ppm. For Diethyl Phthalate: 5ppm. For Benzoyl Peroxide: 5mg/m3. For Titanium Dioxide: 10 mg/m3

Permissible Exposure Limit (Pel): For Polymer: NE. For Decomposition Product, Methyl Methacrylate: 100 ppm. For Diethyll Phthalate: 5 ppm. For Benzoyl Peroxide: 5mg/m3. For Titanium Dioxide: 15 mg/m3

Human Patch Test: Approximate one-third of subjects developed mild redness at the site of application. Twenty percent showed sensitivity when tested 10 days later.

Reproductive Effects: Inhalation TClo, rat: 54 mg/m3/54 minutes, 6-15 days of pregnancy. Inhalation TClo.rat: 54 mg/m3/24 hours, 8 weeks of pregnancy. Inhalation TClo, rat: 4480 mg/m3/2 hours, 6 -18 days of pregnancy. RTECS: OZ50750000, TSCA Inventory ; 1986

For Diethyl Phthalate:
TC50 Inhalation Human: 1000mg/m3. LD50 Intraperitoneal Mouse: 2749 mg/kg. LD50 Intraperitoneal Rat: 5058 mg/kg. LD50 Intravenous Rabbit: 100 mg/kg. LD50 Oral Guinea Pig: 8600 mg/kg. LD50 Oral Mouse: 6172 mg/kg. LD50 Oral Rat: 8600 mg/kg. LD lo Oral Rabbit: 1000mg/kg. LDlo Subcutaneous Guinea Pig: 3000 mg/kg. RTECS. T11050000,TSCA: 1986

For Benzoyl Peroxide:
LDlo Intraperitoneal Mouse: 250 mg/kg. LD50 Oral Rat: 7710 mg/kg.RTECS: DM8575000.TSCA: 1986.

For Titanium Dioxide:
LD50 Oral Rat: > 9000mg/kg. RTECS: TI08755079. TSCA: 1986.

Section III - Hazards Identification Continued

Effects Of Overexposure:

For Polymer:
OSHA classifies this material as Particulates, Not Otherwise Classified. Eyes, skin and Respiratory tract may be irritated by gross overexposure to Particulates, Not Otherwise Classified, no matter how they are generated. Avoid inhalation of dust. Keep dust out of eyes to prevent possible irritation.

For Decomposition Product:
Methyl Methacrylate Monomer; Liquid or high vapor concentration can irritate eyes, respiratory system and cause skin rashes. Prolonged exposure can lead to headaches, nausea, staggering gait, confusion, drowsiness and unconsciousness. Repeated and prolonged over exposure may cause permanent brain and nervous system damage, allergic skin rashes, eye corrosion and permanent injury, as well as changes in liver and kidney function or damage.

For Benzoyl Peroxide:
Prolonged and /or repeated skin contact may cause skin irritation, defatting, dermatitis and sensitization. May cause eye irritation or damage. Dust may cause irritation of the nose, throat and lungs. May produce muscular weakness upon ingestion.

For Diethyl Phthalate: Direct contact with the liquid or exposure to its vapors or mists may cause burning, tearing, redness and swelling of the eyes. Prolonged or repeated skin exposure may cause redness, burning, drying, cracking and dermatitis. Persons with pre-existing skin disorders may be more susceptible to this material. Inhalation of excessive amounts may cause irritation of the nose, and throat, central nervous system depression such as drowsiness, dizziness, loss of coordination and fatigue. Persons with impaired lung function or asthma-like conditions may experience additional breathing difficulties. Ingestion of large amounts may cause irritation of the digestive tract and signs of nervous system depression.

For Titanium Dioxide:
May cause temporary drying effect or irritation of mucous membrane. Although non-corrosive, non-irritating and non-sensitizing, it may have a drying effect on the skin. In contact with the eye it is an inert foreign body. Harmless if swallowed, physiologically inert.

NOTE: Refer to Section 11, Toxicological Information for Details

Section IV - First Aid Measures

First Aid for Eye	Flush with water for 15 minutes, including under eyelids. Get medical help if discomfort persists.
First Aid for Skin	Wash with soap and water. Get medical help if discomfort persists.
First Aid for Inhalation	Remove to fresh air. Get medical help if discomfort persists.
First Aid for Ingestion	Rinse mouth out with water. Call doctor if amount was large.

Section V - Fire Fighting Measures

Flash Point (°F/°C)	Flammable Limit (vol%)	Auto-ignition Temperature (vol%)
304 deg C ; 579 deg F	NA	NA

Extinguishing Media:	Water, Carbon Dioxide , Dry Chemical
Fire Fighting Instructions:	Avoid extinguishing methods which may generate dust cloud . Water stream can disperse dust into air, producing a fire hazard and possible explosion hazard if exposed to ignition source.
Unusual Hazards:	Polymer dust is combustible . The explosive limits of the polymer particles suspended in air are approximately those of coal dust. Firefighters should wear self-contained breathing apparatus.

Section VI - Accidental Release Measures

Spill or Release Procedures - Sweep up to avoid slipping hazard. Keep airborne particulates at a minimum when cleaning up spills.

Section VII - Handling and Storage

Handling	• Observe precautions found on the label. Wash face and hands thoroughly with soap and water after handling and before eating, drinking or smoking. Avoid prolonged or repeated contact with skin. Avoid contamination. Use only with adequate ventilation.
Storage	• Store in cool, dry place away from heat, sparks, flame and direct sunlight. Close container after each use. Ground all metal containers when transferring. Use explosion-proof equipment Store away from combustibles and incompatible materials.
Explosion Hazard	• Polymer dust is combustible, explosive limits of the polymer particles suspended in air are approximately those of coal dust.

Section VIII - Exposure Controls / Personal Protective Equipment

Engineering Controls	Use good local exhaust at processing equipment, including buffers, sanders, grinders and polishers . High temperature processing equipment should be well ventilated. Use explosion-proof equipment. Provide ventilation if necessary to control exposure levels below airborne exposure limits.

Personal Protective Equipment

General	Dust collectors are recommended for handling powder in bulk
Eye/ Face Protection	Use safety glasses and have eye flushing equipment immediately available.
Skin Protection	Minimize contamination by following good industrial practice. Wearing nitrile, neoprene, pvc, latex ot other impermeable gloves is recommended.
Respiratory Protection	Avoid breathing dust and mist. Use dust mask.

Section IX - Physical and Chemical Properties

Appearance	Odor & Odor Threshold	pH	Specific Gravity	Viscosity	% Volatile
Original, Lt fibered, Lt reddish pink or clear free flowing powder	Faint odor in bulk	N/A	N/E	N/A	0.0

Boiling Point/ Freezing Point	Decomposition Temperature	Octanol/Water Partitioning Coefficient Log Po/w	Vapor Pressure:	Vapor Density	Evaporation Rate	Ignition	Solubility In Water (20°C)
N/A	572ºF/ 300ºC	N/A	N/A	N/A	N/A	N/A	Insoluble

Section X - Stability and Reactivity

Stability: Stable **Incompatibility (Materials to Avoid):** Strong oxidizing agents
Hazardous Decomposition Products: Methacrylate Monomer and Carbon Monoxide **Hazardous Polymerization:** Will not occur
Conditions to Avoid: Heating above 300º C

Section XI - Toxicological Information

Acute Oral Toxicity	Acute Dermal Toxicity	Acute Inhalation Toxicity	Eye / Skin Irritation
LD50 Oral (Rat): 7990mg/kg	LD50 Dermal (Rabbit): 35,500 mg/kg	LC50 Inhalation (Rat: >12,500 to 16,500 ppm for 0.5 hrs	None

Sensitization N/DA **Mutagenicity** N/DA **Sub-chronic Toxicity** N/DA

Section XII - Ecological Information

Ecotoxicological Information

Acute Toxicity to Fish	Acute Toxicityto Invertebrates	Acute Toxicityto Algae	Bioconcentration	Toxicity to Sewage Bacteria
Flathead minnows and goldfish TLm24: 420 ppm Bluegills TLm24: 368 ppm	N/DA	N/DA	N/DA	N/DA

Chemical Fate Information

Biodegradability N/DA **Chemical Oxygen Demand** N/DA

Section XIII - Disposal Concentrations

- This product contains a Diethyl Phthalate, contaminated product may be a RCRA/OSHA hazardous waste (40 CFR Part 261 and 29 CFR Part 1910). Incinerate material in accordance with Federal, State and Local regulations.

Section XIV - Transport Information

- NA

Section XV - Regulatory Information

US Federal Regulations

Clean Air Act: HAP	This product contains no hazardous air pollutants (HAP), as defined by the U. S. Clean Air Act.
Clean Air Act: ODS	This product neither contains , nor was manufactured with a Class I or Class II ozone depleting substances (ODS).
Clean Water Act: Priority Pollutant	This product contains no chemicals listed under the U.S. Clean Water Act Priority Pollutant List.

Section XV - Regulatory Information Continued

FDA: Food Packaging Status	This product has not been cleared by the FDA for use in food packaging and/ or other applications as an indirect food additive.
Occupational Safety and Health Act	This product contains hazardous chemical under the OSHA Hazard Communication Standard. Its hazards are: Immediate (acute) health hazard; Fire hazard
RCRA	This product contains chemicals considered to be hazardous waste under RCRA (40 CFR 261). Dibutyl Phthalate ; CAS NO: 84-74-2 ; RCRA Code: U088
SARA Title III: Section 302	This product contains no chemicals regulated under Sec. 302 as extremely hazardous substances.
SARA Title III: Section 304	This product contains chemicals regulated under Sec. 304 as extremely hazardous chemicals for emergency release notification ("CERCLA " List). Dibutyl Phthalate; CAS NO: 84 74-2; RQ(Lbs): 1000
SARA Title III: Section 311-312:	This product contains hazardous substance under the OSHA Hazard Communication Standard and is regulated under Section 311-312 (40 CFR 370). Its hazards are: Immediate (acute) health & fire hazard
SARA Title III: Section 313:	This product contains chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. Benzoyl Peroxide: CAS NO: 94 - 36 - 0
TSCA Section 8(b): Inventory:	None

State Regulations

CA Proposition 65	This product contains no substances known to the State of California to cause cancer and reproductive effects.
MA Right-to-Know Law:	This product contains: Benzoyl Peroxide; CAS NO: 94-36-0 Dibutyl Phthalate; CAS NO: 84-74-2 which are listed on the Massachusetts Hazardous Substance List.
NJ Right-to-Know Law:	This product contains: Benzoyl Peroxide; CAS NO: 94-36-0 Dibutyl Phthalate; CAS NO: 84-74-2 which are listed on the New Jersey Hazardous Substance List.
PA Right-to-Know Law:	This product contains: Dibenzoyl Peroxide; CAS NO: 94-36-0 Dibutyl Phthalate; CAS NO: 84-74-2 which are listed on the Pennsylvania Environmental Hazardous Substance List.

International Regulations

CDSL: Canadian Inventory (on Canadian Transitional List)	All components of this product are listed on the Canadian DSL
EINECS: European Inventory:	No information available

Section XVI - Other Information

Hazard Rating System	NFPA: Health = NA/Flammability = NA/Reactivity = NA HMIS: Health = 1/Flammability = 1/Reactivity = 0

Approval Date: June 2004 Revised August 14, 2008

Revised to change all appearances of Dialkyl Phthalate to Diethyl Phthalate in sections I, III and XIII and added product numbers to section I..

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SAFETY DATA SHEET

Sledgehammer Self Cure Powder

Section 1. Identification

GHS product identifier : Sledgehammer Self Cure Powder

Other means of identification : Not available.

Product code : 1000507-1000515, 1000547-1000549, 1001969-1001972

Product type : Powder.

Product use : Dental Products
Polymer

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

Not applicable.

Supplier's details : Keystone Industries
616 Hollywood Ave.
Cherry Hill, NJ 08002
(856) 663-4700

Emergency telephone number (with hours of operation) : (800) 535-5053

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : COMBUSTIBLE DUSTS
CARCINOGENICITY - Category 2

Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 99%

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : May form combustible dust concentrations in air.
Suspected of causing cancer.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing.

Response : IF exposed or concerned: Get medical attention.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements : Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Prevent dust accumulation.

Hazards not otherwise classified : Fine dust clouds may form explosive mixtures with air. Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

CAS number/other identifiers

CAS number : Not applicable.

May contain one or more of the following components in quantities considered hazardous:

Ingredient name	CAS number	EC number	%
titanium dioxide	13463-67-7	236-675-5	0.1 - 1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Inhalation : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
irritation
redness

Section 4. First aid measures

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical powder.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Fine dust clouds may form explosive mixtures with air.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Section 6. Accidental release measures

Small spill : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Do not store above the following temperature: 200°C (392°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
titanium dioxide	**ACGIH TLV (United States, 4/2014).** TWA: 10 mg/m³ 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 10 mg/m³ 8 hours. Form: Total dust **OSHA PEL (United States, 2/2013).** TWA: 15 mg/m³ 8 hours. Form: Total dust

Section 8. Exposure controls/personal protection

Appropriate engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. If operating conditions cause high dust concentrations to be produced, use dust goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Solid. [Powder.]

Color : Colored

Odor : Faint odor. [Slight]

pH : Not applicable.

Melting point : Not available.

Boiling point : Not available.

Flash point : Closed cup: 304°C (579.2°F) [Tagliabue.]

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Section 9. Physical and chemical properties

Relative density : Not available.

Solubility : Insoluble in the following materials: cold water and hot water.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : 200°C (392°F)

Viscosity : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.

Incompatible materials : Reactive or incompatible with the following materials:
oxidizing materials

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
titanium dioxide	Skin - Mild irritant	Human	-	72 hours 300 Micrograms Intermittent	-

Classification

Product/ingredient name	OSHA	IARC	NTP
titanium dioxide	-	2B	-

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Inhalation : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Section 11. Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
irritation
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
titanium dioxide	Acute LC50 3 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 6.5 mg/l Fresh water	Daphnia - Daphnia pulex - Neonate	48 hours
	Acute LC50 >1000000 µg/l Marine water	Fish - Fundulus heteroclitus	96 hours

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
titanium dioxide	-	352	low

Section 12. Ecological information

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Diethyl phthalate; 1,2-Benzenedicarboxylic acid, diethyl ester	84-66-2	Listed	U088

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-	-
Packing group	-	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.	No.
Additional information	**Reportable quantity** 25000 lbs / 11350 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable	-	-	-	-	-

Section 14. Transport information

	quantity) transportation requirements.					

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 307: diethyl phthalate

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
titanium dioxide	0.1 - 1	No.	No.	No.	No.	Yes.

State regulations

Massachusetts : The following components are listed: DIETHYL PHTHALATE

New York : The following components are listed: Diethyl phthalate

New Jersey : The following components are listed: DIETHYL PHTHALATE; 1, 2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER; DEP; TITANIUM DIOXIDE; TITANIUM OXIDE (TiO2)

Section 15. Regulatory information

Pennsylvania : The following components are listed: 1,2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER; TITANIUM OXIDE (TIO2)

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
titanium dioxide	Yes.	No.	No.	No.

Canada inventory : All components are listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): All components are listed or exempted.

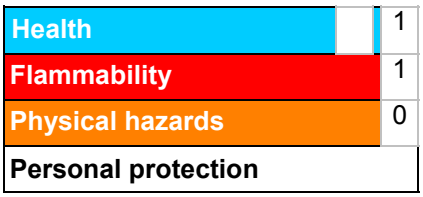
Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Section 16. Other information

History

Date of printing : 5/14/2015

Date of issue/Date of revision : 5/14/2015

Date of previous issue : 4/21/2015

Version : 1

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Indicates information that has changed from previously issued version.

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