Material Safety Data Sheet SLEDGEHAMMER®

Heat Cure Powder

Section I - Product and Company Identification

Product Name: SLEDGEHAMMER HEAT 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 – 100470, 1000471, 1000472, 1000473, 1000474, 1000475, 1000476, 1000477, 1000478, 1000494, 1000495, 1000496, 1000498, 1000499, 1000500, 1000502, 1000503,m 1000504, 1000535, 1000536, 1000537, 1000543, 1000544, 1000545, 1001961, 1001962, 1001963, 1001965, 1001966, 1001967

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
Dibutyl Phthalate	84-74-2	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 Dibutyl 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 Dibutyl 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 Dibutyl 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 Dibutyl 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 Dibutyl 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 conrainers 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
Clear, pink, or reddish-pink 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	572 F/ 300 C	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 300 deg 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 - Disposable Concentrations

- This product contains a Dibutyl 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: 9/20/00 Revised August 14, 2008

Revised to change all appearances of Dialkyl Phthalate C.A.S. 84-66-2 to Dibutyl Phthalate C.A.S. 84-74-2 in sections II, III, XIII and XV and added product numbers to section I.

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