

Safety Data Sheet

Section 1 - Chemical Product and Company Identification

Product Name: DuraTray II Powder

Company Identification:

Reliance Dental Mfg., LLC.

5805 W. 117th Place

Alsip, IL 60803

For Product Information, call: 708-597-6694 **For Medical Information, call:** 800-535-5053

Section 2 - Hazards Identification

EMERGENCY OVERVIEW:

WARNING:

For Polymer:

Eyes:

OSHA classifies this material as Particulates, Not Otherwise Classified.

May be irritating to the eyes by gross overexposure, no matter how generated. Symptoms of overexposure may include redness, itching, irritation, burning pain and watering. Keep dust out of eyes.

Respiratory Tract:

May be irritated by gross overexposure, no matter how generated.

Skin:

May be irritated by gross overexposure, no matter how generated. May cause dryness.

For Calcium Carbonate:

Eyes:

May cause mild irritation including watering.

Ingestion:

If the quantity is large, it may cause intestinal obstruction and/or constipation.

Respiratory Tract:

Can be irritating, with symptoms including sneezing and nasal irritation.

For Synthetic Organic Colorant:

Acute Hazards:

Eyes:

May cause slight irritation.

Skin:

May cause slight Irritation.

Chronic Hazards:

Skin:

Long term exposure may result in dermatitis for sensitive individuals.

Inhalation:

Respiratory allergies and diseases may be aggravated by extreme exposures.

For Decomposition Products:

Methyl Methacrylate Monomer:

Acute Hazards:

Eyes:

May irritate.

Respiratory Tract:

May irritate.

Skin:

May cause rashes.

Symptoms:

Headaches, nausea, staggering gait, confusion, drowsiness and unconsciousness.

Chronic Hazards:

Eyes:

May cause eye corrosion and permanent injury.

Liver and Kidneys:

May cause changes in liver and kidney function or damage.

Nervous System:

Repeated and prolonged over exposure may cause permanent damage.

Skin:

May cause allergic skin rashes.

For Ethyl Acrylate Monomer:

Acute Hazards:

Eyes:

Causes severe irritation or chemical burns. Permanent damage if not treated promptly.

Ingestion:

Causes severe gastrointestinal irritation and lethargy.

Inhalation:

High concentrations of vapors or mists may cause headaches, nausea or severe irritation to the mucous membranes and the respiratory tract. Also causes cyanosis. Possibly fatal in high concentrations.

Skin:

Can be absorbed through the skin in harmful amounts. Causes severe irritations or chemical burns. Permanent damage if not treated promptly.

Section 2 - Hazards Identification Continued

Chronic Hazards:

Inhalation: Prolonged or repeated exposure can cause drowsiness, headache and nausea. Repeated exposure may cause liver and kidney damage.

Skin: May cause skin sensitization to acrylic monomers.

CARCINOGENICITY:

Ethyl Acrylate is listed as a suspected human carcinogen by IARC, NTP, and ACGIH based on animal studies. NIOSH lists Ethyl Acrylate as a carcinogen without comment. Calcium Carbonate contains crystalline silica as a minor impurity. Crystalline silica is listed by IARC as a pulmonary carcinogen in humans. None of the other components of this material are listed by IARC, NTP, OSHA, or ACGIH as carcinogens.

PRIMARY ROUTES OF ENTRY:

Inhalation, Skin or Eyes.

Section 3 - Composition, Information on Ingredients

FOR POLYMER:

Item	Chemical Name	CAS #	WT/WT%
01	Particulates Not Otherwise Classified	NE	60.0-100.0
02	Residual Monomers	NA	0.5-5.0
03	Calcium Carbonate (CI 77220)	1317-65-3	30.0-60.0
04	Synthetic Organic Colorant	NE	0.5-1.5

ITEM	ACGIH		OSHA Company		Recommendation	SKIN
	TLV-TWA	TLV-STEL	PEL TWA	PEL CEILING		
01	10 mg/m ³	NE	15 mg/m ³	NE	NE	NE
02	NA	NA	NA	NA	NA	NA
03	10 mg/m ³	NE	15 mg/m ³	NE	10 mg/m ³	NE
04	NE	NE	NE	NE	NE	NE

FOR DECOMPOSITION PRODUCTS:

Item	Chemical Name	CAS #	WT/WT%
05	Methyl Methacrylate Monomer	80-62-6	40.0-70.0
06	Ethyl Acrylate Monomer	140-88-5	5.0-10.0

ITEM	ACGIH		OSHA Company		Recommendation	SKIN
	TLV-TWA	TLV-STEL	PEL TWA	PEL CEILING		
05	100 ppm	NE	100 ppm	NE	100 ppm	NE
06	5 ppm skin	25 ppm	25 ppm skin	NE	5 ppm skin	5 ppm skin

Section 4 - First Aid Measures

EMERGENCY AND FIRST AID PROCEDURES:

EYES: Flush with water for 15 minutes, including under eyelids. Get medical help if discomfort persists.

INGESTION: Rinse mouth out with water. Call doctor if amount was large.

INHALATION: Remove to fresh air. Get medical help if discomfort persists.

SKIN: Wash with soap and water. Get medical help if discomfort persists.

CLOTHING: Remove contaminated clothing, wash thoroughly before reuse.

TREATMENT: Treat symptoms conventionally, after thorough decontamination.

Section 5 - Fire Fighting Measures

FLASH POINT:	304 °C, 580 °F
FLAMMABLE LIMIT, AIR VOL%	LOWER: NA UPPER: NA
AUTOIGNITION TEMPERATURE:	NE
EXTINGUISHER METHOD:	Water, carbon dioxide, dry chemical.
FIRE AND EXPLOSION HAZARDS:	Polymer dust is combustible. The explosive limits of the polymer particles suspended in air are approximately those of coal dust.
SPECIAL FIRE FIGHTING PROCEDURES:	Avoid extinguishing methods, which may generate dust clouds. Water stream can disperse dust into air producing a fire hazard and possible explosion hazard if exposed to ignition source.
EXPLOSION HAZARD:	Firefighters should wear self-contained breathing apparatus.
SENSITIVE TO MECHANICAL IMPACT:	No.
SENSITIVE TO STATIC DISCHARGE:	Yes

Section 6 - Accidental Release Measures

ACCIDENTAL RELEASE:	Isolate hazard area and deny entry to unnecessary or un protected personnel. Sweep up to avoid slipping hazard. Keep airborne particulates at a minimum when cleaning up spills.
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Section 7 - Handling and Storage

PRECAUTIONS FOR HANDLING:	Use in well ventilated areas. Avoid contact with skin, eyes and clothing. Avoid breathing dust. Use good personal hygiene and housekeeping.
PRECAUTIONS FOR STORAGE:	Store containers in a cool, dry place away from incompatible materials. Keep container closed to prevent water absorption and contamination.
INDUSTRIAL HYGIENE PRACTICES:	Wash face and hands thoroughly with soap and water after use and before eating, drinking, smoking or applying cosmetics.

Section 8 - Exposure Controls, Personal Protection

VENTILATION:	Use good local exhaust at processing equipment, including buffers, sanders, grinders and polishers.
RESPIRATORY PROTECTION:	Use type for Particulates Not Otherwise Classified, if needed.
EYE PROTECTION:	Safety glasses or chemical splash goggles.
PROTECTIVE GLOVES:	Impervious, nitrile, if hot plastic is handled.
OTHER PROTECTIVE EQUIPMENT:	Provide eyewash, safety shower and impervious clothing are recommended. High temperature processing equipment should be well ventilated
INDUSTRIAL HYGIENE PRACTICES:	Wash face and hands thoroughly with soap and water after use and before eating, drinking, smoking or applying cosmetics.

Section 9 - Physical and Chemical Properties

APPEARANCE:	Fine fluorescent blue or green powder.
ODOR:	Faint odor in bulk.
pH:	ND
ODOR THRESHOLD:	ND
BOILING POINT:	NA
FREEZING POINT:	NA
VISCOSITY:	NA
SPECIFIC GRAVITY (H₂O=1):	1.25

Section 9 - Physical and Chemical Properties Continued

VAPOR PRESSURE:	NA
PERCENT VOLATILE W/W%:	NA
VAPOR DENSITY (AIR=1):	NA
EVAPORATION RATE (BuAc =1):	30
SOLUBILITY IN WATER:	Insoluble.
COEFFICIENT OF WATER/OIL DISTRIBUTION:	ND

Section 10 - Stability and Reactivity

CONDITIONS TO AVOID:	Heating above 240 °C, 464 °F.		
INCOMPATIBILITY (MATERIALS TO AVOID):	Strong oxidizing agents.		
HAZARDOUS DECOMPOSITION PRODUCTS:	Methacrylate Monomer and Oxides of Carbon when burned.		
HAZARDOUS POLYMERIZATION:	MAY OCCUR:	WILL NOT OCCUR:	X
STABILITY:	UNSTABLE:	STABLE:	X

Section 11 - Toxicological Information

TARGET ORGANS:

For Polymer:	None Listed.
For Calcium Carbonate:	None Listed.
For Synthetic Organic Colorant:	None Listed.

For Decomposition Products:

Methyl Methacrylate Monomer:	Nose, Liver, Kidneys.
Ethyl Acrylate Monomer:	Skin, Eyes, Respiratory System.

SENSITIVITY DATA:

For Ethyl Acrylate Monomer:

Skin Rabbit:	Corrosive.
Eye Rabbit:	Corrosive.
Eye Rabbit:	Irritant.
Skin Human:	Corrosive.

MUTAGENICITY DATA:

For Polymer: None Listed.

For Decomposition Products:

Methyl Methacrylate Monomer:

Ovary Hamster	Cytogenetic Analysis:	1600 µg/L.
Inhalation Rat	Cytogenetic Analysis:	4 mg/m ³ /16W.
Lymphocyte Mouse	Gene Mutation in Mammalian Cells:	704 mg/L.
Lymphocyte Mouse	Microsomal Assay:	500 mg/L.
Ovary, Hamster	Sister Chromatid Exchange:	1500 mg/L.

Ethyl Acrylate Monomer:

Lung Hamster	Cytogenetic Analysis:	9800 µg/L.
Lymphocyte Mouse	Cytogenetic Analysis:	20 mg/L.
Lymphocyte Mouse	Gene Mutation in Mammalian Cells:	20 mg/L.
Intraperitoneal Mouse	Micronucleus Test:	225 mg/kg.
Lymphocyte Mouse	Microsomal Assay:	20 mg/L.
S. Typhimurium	Microsomal Assay:	100 µg/plate.

Section 11 - Toxicological Information Continued

REPRODUCTIVE TOXICITY DATA:

For Polymer: None Listed.

For Decomposition Products:

Methyl Methacrylate Monomer:

Inhalation Rat	TC _{Lo} :	109 gm/m ³ /17M.
Inhalation Rat	TC _{Lo} :	109 gm/m ³ /54M,6-15 days of pregnancy.
Inhalation Rat	TC _{Lo} :	54 mg/m ³ /24H,8 weeks of pregnancy.
Inhalation Rat	TC _{Lo} :	4480 mg/m ³ /2H,6-18 days of pregnancy.
Intraperitoneal Rat	TC _{Lo} :	405 mg/kg.
Intraperitoneal Rat	TC _{Lo} :	801 mg/kg.

Ethyl Acrylate Monomer:

Inhalation Rat	TC _{Lo} :	135 ppm/6H 6-15D preg
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TUMOROGENIC DATA:

For Polymer: None Listed.

TOXICITY DATA:

For Polymer: None Listed.

For Synthetic Organic Colorant:

Inhalation Rat	LC ₅₀ :	>2.88 mg/L/4H.
Oral Rat	LD ₅₀ :	>15.300 mg/kg
Skin Rabbit	LD ₅₀ :	>3000 mg/kg.

For Decomposition Products:

Methyl Methacrylate Monomer:

Acute Oral Rat	LD ₅₀ :	7990 mg/kg.
Acute Oral Rat	LD ₅₀ :	>5000 mg/kg.
Acute Dermal Rabbit	LD ₅₀ :	35,500 mg/kg.
Acute Dermal Rabbit	LD ₅₀ :	>5000 mg/kg.
Acute Inhalation Rat	LD ₅₀ :	>12,500 to 16,500 ppm/0.5H.
Inhalation Human	TC _{Lo} :	125 ppm.
Inhalation Human	TC _{Lo} :	60 mg/m ³ .
Inhalation Rat	LD ₅₀ :	7094 ppm/4H.

Epidemiology Data:

In a retrospective study of the effects of exposure to ethyl acrylate and methyl Methacrylate on workers in one plant between 1933 and 1945, a higher-than-expected incidence of colorectal cancer mortality was observed. A study on workers hired after 1945 in the same plant, and a study on workers hired after 1942 in a second plant, did not show an increased risk of colorectal cancer mortality.

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.

Ethyl Acrylate Monomer:

Inhalation Guinea Pig	LC _{Lo} :	1204 ppm/7H.
Inhalation Human	TC _{Lo} :	50 ppm.
Inhalation Mouse	LC _{Lo} :	25 mg/m ³ /2H.
Inhalation Rat	LC ₅₀ :	21870 ppm/4H.
Inhalation Rat	LC ₅₀ :	2000 ppm/4H.
Inhalation Rabbit	LC _{Lo} :	1204 ppm/7H.
Intraperitoneal Mouse	LD ₅₀ :	599 mg/kg.
Intraperitoneal Rat	LD ₅₀ :	4550 mg/kg.
Oral Mouse	LD ₅₀ :	1779 mg/kg.
Oral Rat	LD ₅₀ :	800 mg/kg.

Section 11 - Toxicological Information Continued

Oral Rat	LD ₅₀ :	1120 mg/kg.
Oral Rabbit	LD ₅₀ :	400 mg/kg.
Skin Rat	LD _{Lo} :	1800 mg/kg.
Skin Rat	LD _{Lo} :	3976 mg/kg.
Skin Rat	LD _{Lo} :	>5000 mg/kg.
Skin Rabbit	LD ₅₀ :	1834 mg/kg.
Skin Rabbit	LD ₅₀ :	1800 mg/kg.

Section 12 - Ecological Information

AQUATIC TOXICITY:

For Polymer: None Listed.

For Decomposition Products:

Methyl Methacrylate Monomer:

Flathead Minnows	TLM _{96H} :	100-1000 ppm.
Gold Fish	TLM _{24H} :	420 ppm.
Bluegills	TLM _{24H} :	368 ppm.
Rainbow Trout	TLM _{96H} :	>79 mg/L.
Daphnia Magna	LC ₅₀ :	69 mg/L.
Algae	LC ₅₀ :	170 mg/L.

Ethyl Acrylate Monomer:

Rainbow Trout	LC _{50-96H} :	5 mg/L.
Daphnia Magna	LC _{50-48H} :	8 mg/L.
Algae	LC _{50-96H} :	5 mg/L.

ECOLOGICAL TOXICITY:

For Polymer: Not Known.

For Synthetic Organic Colorant: No studies have been conducted.

ENVIRONMENTAL FATE:

For Decomposition Products:

Methyl Methacrylate Monomer:

28 Day Biodegradation Study: Ultimately biodegradable (88% within 28 days) under aerobic conditions.

Adsorption/Desorption: Very Highly mobile, not absorbed to soil.

Hydrolysis: Rapidly hydrolyze at alkaline pH.

Soil Metabolism: MMA is rapidly dissipated, t_{1/2}<1 day.

Ethyl Acrylate Monomer:

Biodegradable: Readily hydrolyzes under alkaline conditions.

OXYGEN DEMAND DATA:

For Ethyl Acrylate Monomer:

COD:	1.6 g/G.
BOD:	0.9 g/G/5D.

Section 13 - Disposal Considerations

WASTE DISPOSAL METHOD:

Dispose in landfill or incinerate according to Federal, State, and Local regulations.

DISPOSAL OF EMPTY CONTAINERS:

Reuse of empty drums or containers is not recommended. Employees should be advised of the potential hazards due to residual material, associated with empty containers. It is our policy to discourage the reuse of empty containers and to dispose of all empty containers properly in accordance with Federal, State and Local regulations.

Section 16 - Additional Information Continued

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD IDENTIFICATION RATING:

HEALTH: 1
FLAMMABILITY: 1
REACTIVITY: 0
PERSONAL PROTECTIVE EQUIPMENT: Gloves and Safety Glasses or Chemical Splash Goggles.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD IDENTIFICATION RATING:

HEALTH: 1
FLAMMABILITY: 1
REACTIVITY: 0

ABBREVIATIONS:

NA:	Not Applicable	ND:	Not Determined	NE:	Not Established
ppm:	parts per million	G:	Gallon	mg:	Milligram
L:	Liter	gm:	Gram	mol:	Mole
kg:	Kilogram	μ:	Micro	mm:	Millimeter p Pico
Pa:	Pascals	LC:	Lethal Concentration	LD:	Lethal Dose
TC:	Toxic Concentration	TD:	Toxic Dose	BOD:	Biological Oxygen Demand
COD:	Chemical Oxygen Demand			Lo:	Lowest
ThOD:	Theoretical Oxygen Demand			Tlm:	Threshold Limit
H:	Hours	M:	Months	D:	Days
Y:	Years	W:	Weeks		

ACGIH: American Conference of Governmental Industrial Hygienist
CPR: Controlled Product's Regulation
DSL: Canadian Domestic Substances List
NDSL: Canadian Non-domestic Substance List
IARC: International Agency for Research for Cancer
NOEL: No Observed Effect Level
NOAEL: No Observed Adverse Effect Level
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
TLV: Threshold Limit Value

THIS MATERIAL SAFETY DATA SHEET IS PREPARED IN COMPLIANCE WITH FEDERAL REGULATIONS (29 CFR 1910.1200), THE COMMONWEALTH OF PENNSYLVANIA REGULATIONS (TITLE 34. CHAPTERS 301-323) AND CANADIAN WHMIS REGULATIONS, ANY APPLICABLE STATE AND LOCAL REGULATIONS SHOULD BE CONSULTED. THE ABOVE INFORMATION MAY BE BASED IN PART ON INFORMATION PROVIDED BY COMPONENT SUPPLIERS AND IS BELIEVED TO BE CORRECT AS OF THE DATE HEREOF. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY USE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OF THESE DATA, THE RESULTS TO BE OBTAINED FROM THE USE OF THE MATERIAL, OR THE HAZARDS CONNECTED WITH SUCH USE. SINCE THE INFORMATION CONTAINED HEREIN MAY BE APPLIED UNDER CONDITIONS BEYOND OUR CONTROL AND WITH WHICH WE MAY BE UNFAMILIAR, AND SINCE DATA MADE AVAILABLE SUBSEQUENT TO THE DATE HEREOF MAY SUGGEST MODIFICATION OF THE INFORMATION, WE ASSUME NO RESPONSIBILITY FOR THE RESULT OF ITS USE. THIS INFORMATION AND MATERIAL IS FURNISHED ON THE CONDITION THAT THE PERSON RECEIVING IT SHALL MAKE HIS/HER OWN DETERMINATION AS TO THE SUITABILITY OF THE MATERIAL FOR HIS/HER PARTICULAR PURPOSE AND ON THE CONDITION THAT HE/SHE ASSUME THE RISK OF HIS/HER USE THEREOF.

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