MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER: LANG DENTAL MFG. CO., INC.
175 MESSNER DRIVE
WHEELING, IL 60090
U.S.A.

TELEPHONE: PRODUCT INFORMATION: (800) 222-5264 or (847) 215-6622

EMERGENCY CONTACT: INFOTRAC 24 HOURS CHEMICAL RESPONSE SYSTEM
(800) 535-5053 or (352) 323-3500

PRODUCT: JET LIQUID / ORTHO-JET LIQUID

PRODUCT NUMBERS: 1403, 1404, 1406, 1407, 148, 1409, 1412, 1412G, 1484, 1484EP, 1484LR, 1484U, 1493, 1493AS / 1303, 1304, 1306, 1307, 1308, 1309, 1323, 1334

2. COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL NATURE:
Methyl Methacrylate: CAS Number – 80-62-6 EINECS – 2012971

HAZARDOUS INGREDIENT (S):	%:	HAZARD SYMBOL:	R PHRASES:
Methyl Methacrylate	> 95	F, Xi	11;36/37/38;43
99-97-8 N,N-dimethyl-p-toluidine	< 2	T	23/24/25;33;52/53

3. HAZARDS IDENTIFICATION

Highly flammable.

Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact. High atmospheric concentrations may lead to irritation of the respiratory tract and anesthetic effects. Repeated and/or prolonged contact may cause dermatitis.

4. FIRST AID MEASURES

INHALATION: Remove patient from exposure, keep warm and at rest. Obtain immediate medical attention.

SKIN: Remove contaminated clothing. Wash skin immediately with water. If symptoms (irritation or blistering) occur obtain medical attention.

EYE: Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediate medical attention.

INGESTION: If ingested, do not induce vomiting. If product has been swallowed, drink plenty of water or milk immediately. Never give anything by mouth to an unconscious person. Provide an estimate of the time at which the material was ingested and the amount of the substance that was swallowed. Obtain immediate medical attention.

CLOTHING: Remove contaminated clothing, wash thoroughly before reuse.

TREATMENT: Treat symptoms conventionally, after thorough decontamination.

5. FIRE FIGHTING MEASURES

FLASH POINT (METHOD):	APPROX. FLAMMABLE LIMITS:	AUTOIGNITION TEMPERATURE:
11.5 ºC (52.7 ºF) (TCC)	LEL 2.12%, UEL 12.5%	421 ºC (790 ºF)

EXTINGUISHING MEDIA: Chemical foam, carbon dioxide, dry chemical.

FIRE AND EXPLOSION HAZARDS: For bulk size > 1L – High temperatures, inhibitor depletion, accidental impurities, or exposure to radiation or oxidizers may cause spontaneous polymerizing reaction generating heat/pressure. Closed containers may rupture or explode during a runaway polymerization. Use a water spray or fog to reduce or direct vapors. Water may not be effective in actually extinguishing a fire involving this product.

SPECIAL FIRE FIGHTING PROCEDURES: Highly flammable. When involved in a fire, this product may ignite readily and decompose to produce carbon oxides. Vapors of this product are heavier than air and may travel to a source of ignition and flash back to a leaking or open container. Do not enter fire area without proper protection. Fight fire from a safe location. Heat/impurities may cause pressure to build and/or rupture closed containers, spreading fire, increasing risk of burns/injuries.

FIRE FIGHTING PROTECTIVE EQUIPMENT: A self-contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

SENSITIVE TO MECHANICAL IMPACT: No
SENSITIVE TO STATIC DISCHARGE: Yes

6. ACCIDENTAL RELEASE MEASURES

Eliminate sources of ignition. Ensure suitable personal protection (including respiratory protection) during removal of spillages. Prevent entry into drains. Adsorb spillages onto sand, earth or any suitable adsorbent material. Do not adsorb onto sawdust or other combustible materials. Use only non-sparking tools for recovery and cleanup. Maximize ventilation (open doors and windows) and secure all sources of ignition. Transfer to a container for disposal or recovery. Wash all affected areas with plenty of warm water and soap. Remove any contaminated clothing and wash thoroughly before reuse. Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

7. HANDLING AND STORAGE

PRECAUTIONS FOR HANDLING: Observe precautions found on the label. Close container after each use. Ground all metal containers when transferring. Use explosion-proof equipment.

HANDLING: Avoid contact with skin and eyes.
Avoid inhalation of high concentration of vapors. Use only in well ventilated areas.
The vapor is heavier than air; beware of pits and confined spaces. Take precautionary measures against static discharges.

STORAGE: Keep only in original container. Store in cool, dry place away from heat, sparks, flame and direct sunlight, other light sources, or sources of intense heat.
Keep container closed to prevent water absorption and contamination. Keep away from sources of ignition – No Smoking.

IMPORTANT: Methacrylate stored in bulk must be kept in contact with air (oxygen).

Monomer vapors are uninhibited and may form polymers in vent or flame arresters, resulting in blockage of vents.

STORAGE TEMPERATURE: Preferably not exceeding 25 ºC.
INDUSTRIAL HYGIENE PRACTICES: Avoid contact with skin, eyes, clothing, and prolonged contact with the product.
Wash face and hands thoroughly with the soap and water after use and before eating, drinking, smoking or applying cosmetics. Do not eat, drink or smoke while handling product.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

The following information is given as general guidance.

RESPIRATORS: Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely. A suitable mask with filter type A may be appropriate. If necessary, use only respiratory protection authorized per U.S. OSHA's requirement in 29 CFR SS 1910.134 or other appropriate governing standard.

EYE PROTECTION: Depending on the use of this product, splash or safety glasses may be worn. If necessary, use only respiratory protection authorized per U.S. OSHA's requirement in 29 CFR SS 1910.133 or other appropriate governing standard. Ensure that an eyewash station, sink or washbasin is available in case of exposure to eyes.

GLOVES: If anticipated that prolonged & repeated skin contact will occur during use of this product, wear chemical resistant gloves for routine industrial use. If necessary, use only respiratory protection authorized per U.S. OSHA's requirement in 29 CFR SS 1910.138 or other appropriate governing standard.

OTHER: Wear suitable protective clothing.

OCCUPATIONAL EXPOSURE LIMITS:

HAZARDOUS INGREDIENT (S):	PEL (OSHA):	TLV (ACGIH):	COMPANY RECOMMENDATION:
Methyl Methacrylate	100 ppm	100 ppm	100 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

For Methyl Methacrylate:

VAPOR DENSITY (AIR=1):	VAPOR PRESSURE (28 mmHg):	WATER SOLUBILITY:
3.5 at 15.5 ºC (60 ºF)	20 ºC (68 ºF)	1.6 wt% @ 20 ºC (68 ºF)
PERCENT VOLATILE (W/W%):	BOIL POINT:	SPECIFIC GRAVITY (H_2O=1):
99+	101 ºC, 214 ºF	0.94
VISCOSITY:	EVAPORATION RATE (BuAc=1):	DENSITY:
Like water	3.1	0.949 g/ml @ 15.5ºC
ODOR:	FORM:	COLOR:
Characteristic strong and acrid	Liquid	Clear

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Temperatures above 21ºC, 70ºF, localized heat sources (example drum or band heaters) oxidizing conditions, freezing conditions, direct sunlight, ultraviolet radiation, inert gas blanketing.

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers, strong reducers, free radical initiators, inert gases, and oxygen scavengers. Material has strong solvent properties and can soften paint and rubber.

HAZARDOUS DECOMPOTION PRODUCT(S): Oxides of carbon when burned.

HAZARDOUS POLYMERIZATION: May occur.

STABILITY: Unstable/Reactive upon depletion of inhibitor.

11. TOXICOLOGICAL INFORMATION

INHALATION: Irritating to respiratory system. High atmospheric concentrations may lead to irritation of the respiratory tract, dizziness, headache and anesthetic effects.

SKIN: May cause sensitization by skin contact. Irritating to skin. Repeated and/of prolonged contact may cause dermatitis.

EYE: Irritating to eyes. High vapor concentration will cause irritation.

INGESTION: Low oral toxicity, but ingestion may cause irritation of the gastrointestinal tract.

TARGET ORGANS: For Methyl Methacrylate - Repeated exposure to high levels produces adverse effects on the nose, liver, and kidneys.

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There is no reason to believe that methyl methacrylate represents a carcinogenic or mutagenic hazard to man based upon evidence from well-conducted studies in relevant cohorts.

Recent studies in animals have shown that high exposures do not have reproductive effects. Similarly, none of these effects are likely to occur in humans provided exposure is maintained at or below the occupational exposure limit.

TOXICITY DATA:

For Methacrylate: Acute Oral Rat LD_{50}: >7900 mg/kg
Acute Dermal Rabbit LD_{50} >35,500 mg/kg
Inhalation Human TC_{Lo} 125 ppm
Inhalation Human TC_{Lo} 60 mg/m^3
Inhalation Rat LC_{50} 7094 ppm/4H

For N,N-dimethyl-p-toluidine: Acute Oral Rat LD_{50} 1650 mg/kg
Acute Dermal Rat LD_{50} >2000 mg/kg
Inhalation Rat LC_{50} 2540 ppm/4H

12. ECOLOGICAL INFORMATION

AQUATIC TOXICITY: (For Methyl Methacrylate)
Flathead Minnows LC_{50} 130 mg/L, 96H
Daphnia magna EC_{50} 69 mg/L, 48H
Algae LC_{50} 170 mg/L, 96H

ENVIRONMENTAL FATE: (For Methyl Methacrylate)
28 Day Biodegradation Study: Not readily biodegradable.
Chemical Oxygen Demand (COD) 88% (28 days).
Inherent Biodegradation: Dissolved Organic Carbon Removal (DOC removal) > 95% (28 days)
Adsorption/Desorption: High mobility in soil.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: When discarded it is a hazardous waste by the EPA under RCRA. The reportable quantity (RQ) for methyl methacrylate is 1000 lbs (40 CFR Part 302). After addition of excess inhibitor, dispose waste material in accordance with Federal, State, and Local regulations.

DISPOSAL OF EMPTY CONTAINERS: Reuse of empty drums or containers in not recommended. Employees should be advised of the potential hazards, due to residual flammable material, associated with empty containers. Dispose of all empty containers properly, in accordance with Federal, State and Local regulations.

14. TRANSPORTATION

DOT / UN SHIPPING NAME:	Flammable liquid, n.o.s. (Methyl Methacrylate monomer, stabilized / N, N-dimethyl-p-toludine solution)
NA/UN NUMBER:	UN1993
DOT/UNCLASS:	3
PACKING GROUP:	II
LABEL:	Flammable liquid
IMDG CLASS:	3
CERCLA RQ:	1000 lb

15. REGULATORY INFORMATION

EC REGULATIONS:

EINECS: all chemical listed
EEC Classification: HIGHLY FLAMMABLE AND IRRITANT
Symbol: Indication of Danger


F Highly Flammable

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 Xn Harmful

Risk Phrases: R11 Highly flammable.
R20/21/22 Harmful by inhalation, and in contact with skin.
R33 Danger of cumulative effects.
R36/37/38. Irritating to the eyes, respiratory system and skin.
R43 May cause sensitization by skin contact.

Safety Phrases: S3 Keep in a cool place.
S7 Keep container tightly closed.
S9 Keep container in well ventilated place.
S16 Keep away from sources of ignition. No smoking.
S20 When using do not eat or drink.
S24 Avoid contact with skin.
S29 Do not empty into drains.
S37/39 Wear suitable gloves and eye/face protection.
S46 If swallowed, seek medical advice immediately and show this container or label.

CANADIAN REGULATIONS:

DSL: included
WHMIS Classification: B2 Flammable Liquid
D2B Irritant
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR. None of the components of this product are listed on the Priorities Substances List.

TSCA Inventory Status: The components of this product are listed on the TSCA Inventory.
Other Federal Requirements: This product complies with the appropriate sections of the U.S. FDA's 21 CFR.
State Regulatory: This product may contain components that are covered under specific state criteria.
SARA Reporting Requirements: Yes
SARA Threshold Planning Quantity: There are specific Threshold Planning Quantities for the components of this product.

16. OTHER INFORMATION

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM (HMIS) RATING:
HEALTH = 2
FLAMMABILITY = 3
REACTIVITY = 2
PERSONAL PROTECTIVE EQUIPMENT – Gloves and safety glasses or chemical splash goggles.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD IDENTIFICATION RATING:
HEALTH = 2
FLAMMABILITY = 3
REACTIVITY = 2

This data sheet was prepared in accordance with Directive 91/155/EEC.

The above information has been gathered from reliable sources and is believed to be correct. However, the information is provided without any warranty, either expressed or implied. Lang Dental Mfg. Co., Inc. shall not be held liable for any damage resulting from the handling of or contact with the above product.

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