Safety Data Sheet

according to 29 CFR 1910.1200(g)

LPKF ProMask Component B

1. Identification

Product identifier

LPKF ProMask Component B

Recommended use of the chemical and restrictions on use

Use of the substance/mixture

Photosensitive varnish component for producing solder stop masks on printed circuit boards.

Uses advised against

Any non-intended use.

Details of the supplier of the safety data sheet

Company name:	LPKF Distribution Inc. dba LPKF Laser & Electronics
Street:	12555 SW Leveton Dr
Place:	USA-OR 97062 Tigard
Emergency phone number:	Telephone: 1-800-255-3924 (USA, Chemtel) Telephone: 01-813-248-0585 (Outside US and Canada)

Further Information

No information available.

2. Hazard(s) identification

Classification of the chemical

29 CFR Part 1910.1200

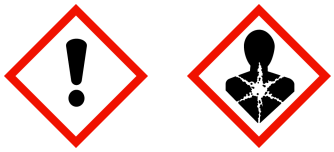
Flammable liquids: Flam. Liq. 4
Serious eye damage/eye irritation: Eye Irrit. 2A
Reproductive toxicity: Repr. 1B

Label elements

29 CFR Part 1910.1200

Signal word: Danger

Pictograms:



Hazard statements

Combustible liquid
Causes serious eye irritation
May damage fertility or the unborn child

Precautionary statements

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Wear protective gloves/protective clothing/eye protection/face protection.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
If exposed or concerned: Get medical advice/attention.
In case of fire: Use Carbon dioxide (CO2) Dry extinguishing powder. alcohol resistant foam. Atomized water. to extinguish.
Store in a well-ventilated place.

Store locked up.
Dispose of contents/container to local/regional/national/international regulations.

Hazards not otherwise classified

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

Environmental hazards:
Aquatic Acute 3, Aquatic Chronic 3 H402, H412
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
The components in this formulation do not meet the criteria for classification as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

Hazardous components

CAS No	Components	Quantity
34590-94-8	(2-methoxymethylethoxy)propanol	10 - 20 %
	acrylated oligomer	10 - 20 %
71868-10-5	2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	5 - 12,5 %
91-76-9	6-phenyl-1,3,5-triazine-2,4-diyldiamine; 6-phenyl-1,3,5-triazine-2,4-diamine; benzoguanamine	2,5 - 5 %

4. First-aid measures

Description of first aid measures

General information

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

In case of accident by inhalation: remove casualty to fresh air and keep at rest. In case of respiratory tract irritation, consult a physician.

After contact with skin

After contact with skin, wash immediately with: Water and soap. Remove contaminated, saturated clothing immediately. In case of skin irritation, seek medical treatment.

After contact with eyes

Rinse cautiously with water for several minutes. In case of troubles or persistent symptoms, consult an ophthalmologist.

After ingestion

Rinse mouth thoroughly with water. Let water be drunken in little sips (dilution effect). Do NOT induce vomiting.
In all cases of doubt, or when symptoms persist, seek medical advice.

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2) Dry extinguishing powder. alcohol resistant foam. Atomized water.

Unsuitable extinguishing media

High power water jet.

Specific hazards arising from the chemical

Can be released in case of fire: Carbon monoxide, Carbon dioxide (CO2).

Special protective equipment and precautions for fire-fighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Co-ordinate fire-fighting measures to the fire surroundings.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Ventilate affected area.
Wear personal protection equipment. refer to chapter 8
Ventilate affected area. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes.
Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

Environmental precautions

Do not allow to enter into surface water or drains. Eliminate leaks immediately. Prevent spread over a wide area (e.g. by containment or oil barriers). In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Treat the recovered material as prescribed in the section on waste disposal.
Clean contaminated objects and areas thoroughly observing environmental regulations.

Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

7. Handling and storage

Precautions for safe handling

Advice on safe handling

Wear suitable protective clothing. (See section 8.)
Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes.
Only use the material in places where open light, fire and other flammable sources can be kept away.

Advice on protection against fire and explosion

Usual measures for fire prevention. Take precautionary measures against static discharges.

Further information on handling

General protection and hygiene measures: refer to chapter 8

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place.

Hints on joint storage

Do not store together with: Explosives. Gas. Oxidizing liquids. Oxidizing solids. Self-reactive substances and mixtures. Organic peroxides. Ammonium nitrate. Combustible toxic substances. Non-combustible toxic substances. Radioactive substances. Infectious substances.

Further information on storage conditions

Keep the packing dry and well sealed to prevent contamination and absorbtion of humidity.
Recommended storage temperature: 5-25°C
Protect against: frost. UV-radiation/sunlight. heat. Humidity

8. Exposure controls/personal protection

Control parameters

Exposure limits

CAS No.	Substance	ppm	mg/m³	f/cc	Category	Origin
7727-43-7	Barium sulfate (resp)	-	5		TWA (8 h)	REL
7727-43-7	Barium sulfate Respirable fraction	-	5		TWA (8 h)	PEL
34590-94-8	Dipropylene glycol methyl ether	100	600		TWA (8 h)	PEL
		100	600		TWA (8 h)	REL
		150	900		STEL (15 min)	REL

Additional advice on limit values

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.
Provide adequate ventilation as well as local exhaustion at critical locations.
Process within closed systems.

Protective and hygiene measures

Always close containers tightly after the removal of product. When using do not eat, drink, smoke, sniff. After work, wash hands and face. Wash contaminated clothing prior to re-use. Street clothing should be stored seperately from work clothing.

Eye/face protection

Recommended eye protection brand: Tightly sealed safety glasses. Standards: EN 166 or 29 CFR 1910.133

Hand protection

Wear suitable gloves.
Suitable material:
FKM (fluororubber). - Thickness of the glove material 0,4 mm
Breakthrough time >= 8 h
Butyl rubber. - Thickness of the glove material 0,5 mm
Breakthrough time >= 8 h
The selected protective gloves should satisfy the specifications of standards like EN 374.
Before using check leak tightness / impermeability. In the case of wanting to use the gloves again, clean them before taking off and air them well.

Skin protection

Suitable protective clothing: Lab apron.

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.
Generation/formation of aerosols
Exceeding exposure limit values
Suitable respiratory protective equipment:
Combination filter device (e.g., airline respirators with an airpurifying filter) EN 14387 or 29 CFR 1910.134 standard.
The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

Environmental exposure controls

Do not allow uncontrolled discharge of product into the environment.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state:	liquid, viscous
Color:	colourless
Odor:	characteristic
pH-Value:	not determined

Changes in the physical state

Melting point/freezing point:	not determined
Initial boiling point and boiling range:	not determined
Sublimation point:	not determined
Softening point:	not determined
Pour point:	not determined
Flash point:	82 °C
Sustaining combustion:	Not sustaining combustion

Explosive properties

none

Lower explosion limits:	1,1 vol. %
Upper explosion limits:	14 vol. %
Ignition temperature:	270 °C

Auto-ignition temperature

Gas:	not determined
Decomposition temperature:	not determined

Oxidizing properties

none

Vapor pressure: (at 20 °C)	0,4 hPa
Density (at 20 °C):	1,183 g/cm³
Water solubility:	partially soluble

Solubility in other solvents

not determined

Partition coefficient:	not determined
Viscosity / dynamic: (at 20 °C)	37000 mPa·s
Viscosity / kinematic:	not determined
Flow time:	not determined
Vapor density:	not determined
Evaporation rate:	not determined
Solvent separation test:	not determined
Solvent content:	18,1%

Other information

Solid content:	not determined

10. Stability and reactivity

Reactivity

No information available.

Chemical stability

Stability: Stable

The product is chemically stable under recommended conditions of storage, use and temperature.

Possibility of hazardous reactions

Hazardous reactions: Will not occur

Refer to chapter 10.5.

Conditions to avoid

Protect against: UV-radiation/sunlight. heat.

Incompatible materials

Materials to avoid: Oxidising agent, strong Reducing agents, strong. alkali.

Hazardous decomposition products

Can be released in case of fire: Carbon monoxide, Carbon dioxide (CO2).

11. Toxicological information

Information on toxicological effects

Route(s) of Entry

Ingestion: May be harmful if swallowed. Inhalation: Skin contact: May cause irritation. Eye contact: Causes serious eye irritation. Chronic effects: May damage fertility or the unborn child.

Toxicocinetics, metabolism and distribution

No data available.

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Components				
	Exposure route	Dose	Species	Source	Method
34590-94-8	(2-methoxymethylethoxy)propanol				
	oral	LD50 >5000 mg/kg	Rat	ECHA Dossier	OECD Guideline 401
	dermal	LD50 >2000 mg/kg	Rabbit	ECHA Dossier	OECD Guideline 402
71868-10-5	2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one				
	oral	LD50 1340 mg/kg	Rat	ECHA Dossier	OECD Guideline 401
	dermal	LD50 > 2000 mg/kg	Rat	ECHA Dossier	OECD Guideline 402
91-76-9	6-phenyl-1,3,5-triazine-2,4-diyldiamine; 6-phenyl-1,3,5-triazine-2,4-diamine; benzoguanamine				
	oral	LD50 933 - 1231 mg/kg	Rat	ECHA Dossier	OECD Guideline 401

Irritation and corrosivity

Causes serious eye irritation

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Sensitizing effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

May damage fertility or the unborn child (2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one)
Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Carcinogenicity: Based on available data, the classification criteria are not met.
(2-methoxymethylethoxy)propanol:
OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test) = negative.
Literature information: ECHA Dossier

6-phenyl-1,3,5-triazine-2,4-diyldiamine; 6-phenyl-1,3,5-triazine-2,4-diamine; benzoguanamine:
In-vitro mutagenicity:
Method:
-OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
-OECD Guideline 471 (Bacterial Reverse Mutation Assay)
-OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Result: negative.
Literature information: ECHA Dossier

Reproductive toxicity/ Developmental toxicity/teratogenicity:
Method: - OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
Species: Rat
Results: NOAEL (P0) = 100 g/kg (m); 4 mg/kg (f) ; NOAEL (F1) = 20 mg/kg

2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one: Ames test negative. Literature information: ECHA Dossier

Specific target organ toxicity (STOT) - single exposure

Based on available data, the classification criteria are not met.

Specific target organ toxicity (STOT) - repeated exposure

Based on available data, the classification criteria are not met.
(2-methoxymethylethoxy)propanol:
Subacute oral toxicity NOAEL = 1000 mg/kg (Rat.)
Subchronic dermal toxicity NOEL = 2850 mg/kg (Rabbit.)
Subchronic inhalative toxicity NOAEL = 200 ppm (Rat.) ; Literature information: ECHA Dossier

6-phenyl-1,3,5-triazine-2,4-diyldiamine; 6-phenyl-1,3,5-triazine-2,4-diamine; benzoguanamine:
Subchronic oral toxicity: Method: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents);
Species: Rat; Exposure duration: 90 d. Result: NOAEL = 19 mg/kg; Literature information: ECHA Dossier

2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one:
Subchronic oral toxicity: Method: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents);
Species: Rat; Exposure duration: 90 d. Result: NOAEL = 75 mg/kg; Literature information: ECHA Dossier

Carcinogenicity (OSHA): No ingredient of this mixture is listed.
Carcinogenicity (IARC): No ingredient of this mixture is listed.
Carcinogenicity (NTP): No ingredient of this mixture is listed.

Aspiration hazard

Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal

No data available.

Practical experience

Other observations

Prolonged or repeated skin contact may cause removal of natural fat from the skin resulting in dermatitis (skin inflammation).
Causes eye irritation.

12. Ecological information

Ecotoxicity

The product has not been tested.

Persistence and degradability

The product has not been tested.

Bioaccumulative potential

No indication of bioaccumulation potential.

Mobility in soil

No data available.

Other adverse effects

No data available.

Further information

Do not allow to enter into surface water or drains.

13. Disposal considerations

Waste treatment methods

Disposal recommendations

Observe in addition any national regulations! Consult the local waste disposal expert about waste disposal.
Non-contaminated packages may be recycled.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

14. Transport information

US DOT 49 CFR 172.101

UN/ID number:	NA1993
Proper shipping name:	Combustible liquids, n.o.s.
Transport hazard class(es):	Comb liq
Packing group:	III
Hazard label:	None

Marine transport (IMDG)

UN number:	No dangerous good in sense of this transport regulation.
UN proper shipping name:	No dangerous good in sense of this transport regulation.
Transport hazard class(es):	No dangerous good in sense of this transport regulation.
Packing group:	No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

UN number:	No dangerous good in sense of this transport regulation.
UN proper shipping name:	No dangerous good in sense of this transport regulation.
Transport hazard class(es):	No dangerous good in sense of this transport regulation.
Packing group:	No dangerous good in sense of this transport regulation.

Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

Special precautions for user

refer to chapter 6-8

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not relevant

15. Regulatory information

U.S. Regulations

National Inventory TSCA

(2-methoxymethylethoxy)propanol: listed in the TSCA inventory 8 (b): (x) active ,not listed under TSCA 12(b)
2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one: listed in the TSCA inventory 8 (b): (x) active ,not listed under TSCA 12(b)
acrylated oligomer: unkown status
6-phenyl-1,3,5-triazine-2,4-diyldiamine; 6-phenyl-1,3,5-triazine-2,4-diamine; benzoguanamine: listed in the TSCA inventory 8 (b): (x) active ,not listed under TSCA 12(b)

National regulatory information

SARA Section 311/312 Hazards:
acrylated oligomer (-): Immediate (acute) health hazard
2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one (71868-10-5): Immediate (acute) health hazard
6-phenyl-1,3,5-triazine-2,4-diyldiamine; 6-phenyl-1,3,5-triazine-2,4-diamine; benzoguanamine (91-76-9): Immediate (acute) health hazard

SARA Section 313 Toxic release inventory:
Barium compounds (-): De minimis limit = 1.0 %, Reportable threshold = Standard

State Regulations

Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)

This product can not expose you to chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Additional information

This preparation is hazardous in the sense of regulation 29 CFR Part 1910.1200.

16. Other information

Hazardous Materials Information Label (HMIS)

Health:	*2
Flammability:	2
Physical Hazard:	0
Personal Protection:	B

NFPA Hazard Ratings

Health:	1
Flammability:	1
Reactivity:	0
Unique Hazard:	

Changes

Revision date:	16.09.2020
Revision No:	2,0

Rev. 1.0; Initial release: 19.02.2020
Rev. 2,0; Changes in chapter: 2, 3, 9, 10, 11, 12, 15, 16, 16.09.2020

Abbreviations and acronyms

ACGIH:American Conference of Governmental Industrial Hygienists
ASTM: American Society for Testing and Materials.
ATE: acute toxicity estimate

BCF: Bio concentration factor
ECHA: European Chemicals Agency
CAS Chemical Abstracts Service
CFR: Code of Federal Regulations
DOT: Department of Transportation
d: days
EC50: Half maximal effective concentration
EN: European Norm
EPA: Environmental Protection Agency
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
h: hours
HMIS: Hazardous Materials Identification System
IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
IBC: Intermediate Bulk Container
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
LOAEL: Lowest observed adverse effect level
LOAEC: Lowest observed adverse effect concentration
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
MARPOL: marine pollution
NOAEL: No observed adverse effect level
NOAEC: No observed adverse effect concentration
NTP: National Toxicology Program
N/A: not applicable
NFPA: National Fire Protection Association
UN: United Nations
OECD: Organisation for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PBT: Persistent bioaccumulative toxic
RTECS: Registry of Toxic Effects of Chemical Substances
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
SARA: Superfund Amendments and Reauthorization Act
STEL: short-term exposure limits
TSCA: Toxic Substances Control Act
TWA: time weighted average
VOC: Volatile Organic Compounds

Other data

Classification according 29 CFR Part 1910.1200:- Classification procedure:
Health hazards: Calculation method.
Environmental hazards: Calculation method.
Physical hazards: On basis of test data and / or calculated and / or estimated.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)