



FLEXBAR MACHINE CORPORATION

MATERIAL SAFETY DATA SHEET
Facsimile Liquid

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CHEMICAL NAME: Promoted Methacrylate Monomer

PRODUCT NAME: F. P. Monomer, Self Cure

TRADE NAME/PRODUCT CODE: P 902 0000

PRODUCT USE: Organic Process Chemical

MANUFACTURER: Flexbar Machine Corporation
ADDRESS: 250 Gibbs Road
Islandia, NY 11749-2697

24 HR. EMERGENCY TELEPHONE: 1-800-424-9300, Chemtrec

FOR INFORMATION CALL: **1-631-582-8440** During Business Hours
1-610-497-9000, Then Press 6 At All Other Times

PRINT DATE: 4/8/10 **UPDATE:** 4/6/10

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER:	WT/WT %
01	Methyl Methacrylate Monomer	80-62-6	60.0-100.0
02	N,N-Dimethyl-p-Toluidine	99-97-8	0.1-1.0
03	Benzophenone	131-57-7	0.1-1.0
04	Hydroquinone	123-31-9	40-80 ppm

ITEM	ACGIH		OSHA		Company	SKIN
	TLV-TWA	TLV-STEL	PEL TWA	PEL CEILING	Recommendation	
01	100 ppm	NE	100 ppm	NE	100 ppm	NE
02	NE	NE	NE	NE	NE	NE
03	NE	NE	NE	NE	NE	NE
04	2 m/m ³	NE	2 m/m ³	NE	NE	NE

See Section 16 for Abbreviations.

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

WARNING: For Mixture: May irritate eyes, skin and respiratory tract.

For Methacrylate:

Acute Hazards:	Eyes: Respiratory Tract: Skin: Symptoms:	May irritate. May irritate. May cause rashes. Headaches, nausea, staggering gait, confusion, drowsiness and unconsciousness.
Chronic Hazards:	Eyes: Liver and Kidneys: Nervous System: Skin:	May cause eye corrosion and permanent injury. May cause changes in liver and kidney function or damage. Repeated and prolonged over exposure may cause permanent damage. May cause allergic skin rashes.

For Toluidine:

Acute Hazards:	Skin Absorption:	Liquid is rapidly absorbed through skin. Absorption of this product into the body causes the formation of methemoglobin, which in sufficient concentration causes cyanosis, symptoms include headache, dizziness, nausea and abdominal pain.
Chronic Hazards:		In case of blue discoloration (cyanosis) of skin, lips or fingernails give oxygen to breathe. No alcohol or physical exertion. Contact a physician.

For Benzophenone:

Eyes: Skin:	May irritate. May irritate.
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For Hydroquinone:

Eyes: Skin: Other Studies:	May irritate. May cause contact dermatitis and poisoning. 300-500 mg/day/5 months caused no abnormalities in studies of blood and urine.
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CARCINOGENICITY:

Hydroquinone is listed as a suspect carcinogen by NTP. All Hydroquinone data given in this MSDS is for the dry powder, not as a component of a liquid mixture. 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 4 - FIRST AID MEASURES**EMERGENCY AND FIRST AID PROCEDURES:**

INHALATION:	Remove to fresh air. Get medical help if discomfort persists.
EYES:	Flush with water for 15 minutes, including under eyelids.
SKIN:	Wash with soap and water.
INGESTION:	Rinse mouth out with water. Do not induce vomiting. Call doctor if amount was large.
CLOTHING:	Wash thoroughly before reuse.
TREATMENT:	Maintain airway. Provide oxygen and/or ventilation assistance, if needed. Treat burns or allergic reactions conventionally after decontamination.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT:	10 °C , 51 °F
FLAMMABLE LIMIT, AIR VOL% LOWER:	2.12
UPPER:	12.5
AUTOIGNITION TEMPERATURE:	435 °C, 815 °F
EXTINGUISHER METHOD:	Chemical foam, carbon dioxide, dry chemical.
FIRE AND EXPLOSION HAZARDS:	Vapors may travel to source of ignition and flash back. Heat can cause polymerization with rapid release of energy which may rupture container explosively. (Spontaneous polymerization may occur on prolonged storage.)
SPECIAL FIRE FIGHTING PROCEDURES:	Wear self contained breathing apparatus, and full protective gear. Use water spray to cool containers.
EXPLOSION HAZARD:	Fight fire from protected location.
SENSITIVE TO MECHANICAL IMPACT:	No.
SENSITIVE TO STATIC DISCHARGE:	Yes.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE:	Evacuate the area. Eliminate sources of ignition. Use self-contained breathing apparatus and protective clothing. Dike and absorb with inert material. Transfer to proper containers for disposal, use non-sparking tools. Contaminated monomer may be unstable, add inhibitor to prevent polymerization. Keep spills and cleaning runoffs out of sewers and open bodies of water. Spills on porous surfaces can contaminate the groundwater.
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SECTION 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.

PRECAUTIONS FOR STORAGE:

Store in cool dry place away from heat, sparks, flame and direct sunlight. Check inhibitor levels every three months.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION**VENTILATION:**

Use good, local explosion-proof ventilation with a minimum capture velocity of 100 ft/min (30 m/min) at point of monomer release. Refer to Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists. Local exhaust ventilation is preferred since it prevents contamination dispersion into the work area by controlling it at its source.

RESPIRATORY PROTECTION:

Use self-contained breathing apparatus when needed.

EYE PROTECTION:

Safety glasses or chemical splash goggles.

PROTECTIVE GLOVES:

Impervious, nitrile.

OTHER PROTECTIVE EQUIPMENT:

Provide eyewash, safety shower and impervious clothing. Protective creams should not be used for protection, but may be used for ease of clean up.

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:**

Clear, pale liquid.

ODOR:

Acrid, fruity.

pH:

ND

ODOR THRESHOLD:

ND

BOILING POINT:

101 °C, 214 °F

FREEZING POINT:

ND

VISCOSITY:

Like water

SPECIFIC GRAVITY (H₂O=1):

0.94

VAPOR PRESSURE: 29 mm Hg @

20 °C, 68 °F

PERCENT VOLATILE W/W%:

99+

VAPOR DENSITY (AIR=1):

3.5 @ 15.5 °C, 60 °F

EVAPORATION RATE (BuAc =1):

3.0

SOLUBILITY IN WATER:

Moderate, 1.6 gm/100 gm @ 20 °C, 68 °F

COEFFICIENT OF WATER/OIL DISTRIBUTION:

ND

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Temperatures above 21 °C, 70 °F, ignition sources, oxidizing/reducing agents, peroxides, acids, alkalis, amines, aging and contamination.

INCOMPATIBILITY (MATERIALS TO AVOID): Reducing and oxidizing agents and UV light. Material has strong solvent properties and can soften paint and rubber.

HAZARDOUS DECOMPOSITION PRODUCTS: Mainly Oxides of Carbon when burned.

HAZARDOUS POLYMERIZATION: MAY OCCUR: X WILL NOT OCCUR:

STABILITY: UNSTABLE: X STABLE:

SECTION 11- TOXICOLOGICAL PROPERTIES

TARGET ORGANS:

For Methyl Methacrylate: Nose, Liver and kidneys.
 For Ethylene Glycol Dimethacrylate Monomer: None Listed.
 For Substituted Toluidine: None listed.
 For Benzophenone: None Listed.
 For Hydroquinone: Kidneys and eyes.

MUTAGENICITY DATA:

For Methyl Methacrylate Monomer:

Ovary Hamster	Cytogenetic Analysis:	1600 mg/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.

For Hydroquinone:

HeLa Cell Human	DNA Inhibition:	100 µ mol/L.
Lymphocyte Mouse	DNA Inhibition:	10 µ mol/L.
Oral Rat	Unscheduled DNA Synthesis:	8 gm/kg.
Intraperitoneal Mouse	Micronucleus Test:	220 mg/kg.
Oral Mouse	Micronucleus Test:	200 mg/kg.
Subcutaneous Mouse	Micronucleus Test:	240 mg/kg/6D-C.
S. Typhimuriam	Microbial Maturation without S9:	2 µ mol/plate.
Lymphocyte Human	Sister Chromatid Exchange:	5 µ mol/L.
Lymphocyte Human	Test Systems Other:	5 µ mol/L.
Lymphocyte Mouse	Test Systems Other:	10 µ mol/L.
Bone Marrow Rabbit	Test Systems Other:	6 µ mol/L.

SECTION 11- TOXICOLOGICAL PROPERTIES CONTINUED

REPRODUCTIVE TOXICITY DATA:

For Methacrylate:

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} :	54mg/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} :	801mg/kg.

For Benzophenone:

Oral Rat	TD _{Lo} :	45 mg/kg.
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For Hydroquinone:

Oral Rat	TD _{Lo} :	2500 mg/kg.
Subcutaneous Rat	TD _{Lo} :	5 mg/kg.
Subcutaneous Rat	TD _{Lo} :	5100 mg/kg.

TOXICITY DATA:

For Methacrylate:

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

For Dimethacrylate:

Intraperitoneal Rat	LD ₅₀ :	2880 mg/kg.
Oral Mouse	LD ₅₀ :	2000 mg/m ³ .
Oral Rat	LD ₅₀ :	3300 mg/m ³ .

For Toluidine:

Intraperitoneal Mouse	LD ₅₀ :	212 mg/kg.
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For Benzophenone:

Oral Rat	TD _{Lo} :	45 gm/kg.
Oral Rat	TD _{Lo} :	54 gm/kg.
Intraperitoneal Mouse	LD ₅₀ :	300 mg/kg.
Oral Rat	LD ₅₀ :	7400mg/kg.

For Hydroquinone:

Human, Adult	LD:	70-170 mg/kg.
Human, Child	LD:	2.4-4.0 mg/kg.
Acute Oral, Rat	LD ₅₀ :	400 mg/kg.
Acute Oral, Mouse	LD ₅₀ :	100-200 mg/kg.
Dermal, Guinea Pig	LD ₅₀ :	>1000 mg/kg.
Eye irritation, Rabbit	:	Moderate erythema clearing by day 14.

SECTION 12 - ECOLOGICAL INFORMATION**AQUATIC TOXICITY:**

For Methacrylate:

Flathead Minnows	TLm _{96H} :	100-1000 ppm.
Goldfish	TLm _{24H} :	420 ppm.
Bluegills	TLm _{24H} :	368 ppm.

For Hydroquinone:

Flathead Minnows	LC _{50-96H} :	0.1-.0.8 mg/L.
Goldfish	LC _{50-48H} :	0.287 mg/L.
Golden Orfe	LC _{50-48H} :	0.16 mg/L.
Rainbow Trout	LC _{50-48H} :	0.097 mg/L.
Water Flea	LC _{50-48H} :	0.032-0.32 mg/L.

SECTION 13 - DISPOSAL CONSIDERATIONS**WASTE DISPOSAL METHOD:**

When discarded it is listed as a hazardous waste by the EPA under RCRA U-162 with the reportable quantity (RQ) of 1000 pounds (40 CFR Part 302). Incinerate liquid and diking material after addition of excess inhibitor, in accordance with 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 flammable 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 14 - TRANSPORTATION

DOT/UN SHIPPING NAME:	METHYL METHACRYLATE MONOMER, STABILIZED, SOLUTION	
DOT/UN CLASS:	3	
NA/UN NUMBER:	UN 1247	
PACKING GROUP:	PACKING GROUP II	
NAERG:	129P	
LABEL:	Flammable Liquid	
NMFC ITEM #:	42650	
SCHEDULE B:	2916.14.2020	
IMDG CLASS:	3.2	
IMDG PG:	3259	
CERLA RQ:	For Methacrylate:	1000 lb.
	For Hydroquinone:	100 lb.

SECTION 15 - REGULATORY INFORMATION

ITEM	TSCA	EINECS	CERCLA	313	CAA	RCRA
01	X	X	X	X	X	U 162
02	X	X				
03	X	X				
04	X	X	X	X		
ITEM	CWA	PA	NJ	CA 65	WHMIS	
01		X	X		X	
04					X	

TSCA: FOR USE IN FDA REGULATED PRODUCTS ONLY

CANADIAN WHMIS: This product has been classified in accordance with the hazardous criteria of the CPR and the MSDS contains all the information required by the CPR.

SECTION 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

ABBREVIATIONS:

NA	Not Applicable	ND	Not Determined
NE	Not Established	CPR	Controlled Products Regulation
ppm	parts per million	G	Gallon
mg	Milligram	L	Liter
gm	Gram	mol	Mole
kg	Kilogram	μ	Micro
mm	Millimeter		
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		

SECTION 16 - OTHER INFORMATION

Prepared By: *Louis A. Valachi* Health, Safety and Environment

Reviewed By: *Bernard D. Casch* Technical Review

Reviewed By: *Jonathan Allen* President

Issue Date: 5/31/01

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.