SAFETY DATA SHEET

Version: 1.0
Date of Issue: 06 April 2018
Date of First Issue: 06 April 2018

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In accordance with Schedule 1 of Hazardous Products Regulations (HPR) (WHMIS 2015)

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name	M-Coat B (Control # 1072 and Higher)
Other Means of Identification	None

Recommended use and restrictions

Recommended use	PC9a Coatings and paints, thinners, paint removers
Restrictions on use	Anything other than the above.

Initial Supplier Identifier

Company Identification	VISHAY MEASUREMENTS GROUP, INC.
Telephone	Post Office Box 27777 Raleigh, NC 27611 USA
E-Mail (competent person)	mm.us@vishaypg.com

Emergency telephone number

Emergency Phone No.	1-800-424-9300	CHEMTREC (24 hours)
Languages spoken	English	

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

In accordance with Schedule 1 of Hazardous Products Regulations (HPR) (WHMIS 2015)

Flammable Liquid, Category 2
Eye Irritation, Category 2
Specific target organ toxicity — single exposure, Category 3
Carcinogenicity, Category 1

Label elements

Hazard Pictogram(s)

Signal Word(s)

Danger

Hazard Statement(s)

Highly flammable liquid and vapour.
Causes serious eye irritation.
May cause drowsiness or dizziness.
May cause cancer.

Precautionary Statement(s)

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Wash hands and exposed skin thoroughly after handling.
Avoid breathing vapours.
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 INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER/doctor if you feel unwell.

Store locked up.
Dispose of contents in accordance with local, state or national legislation.

Other hazards

Repeated exposure may cause skin dryness or cracking. Contains: Formaldehyde. May produce an allergic reaction.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances Not applicable

Mixtures

GHS Classification

Chemical Name	CAS No.	Concentration (%W/W)	Common name(s), synonym(s) of the substance	Hazard classification
Ethyl methyl ketone	78-93-3	60 - 80	Butanone; Methyl ethyl ketone	Flammable Liquid, Category 2 Eye Irritation, Category 2 Specific target organ toxicity — single exposure, Category 3 (Narcosis / Central nervous system)
Formaldehyde	50-00-0	0.1 - 1	-	Acute toxicity (Oral), Category 3 Acute toxicity (Dermal), Category 3 Acute toxicity (Inhalation), Category 3 Skin corrosion/irritation, Category 1 Skin Sensitisation, Category 1 Eye damage, Category 1 Germ cell mutagenicity, Category 2 Carcinogenicity - Category 1 **Specific Concentration Limit:** Skin Sensitisation, Category 1: C ≥ 0.2 % Skin corrosion/irritation, Category 1: C ≥ 25 % Skin corrosion/irritation, Category 2: 5 % ≤ C < 25 % Eye Irritation, Category 2: 5 % ≤ C < 25 % Specific target organ toxicity — single exposure, Category 3: C ≥ 5 %

Prescribed Concentration Ranges used for trade secret purposes (Canada Gazette, Part II, Vol. 152, No. 8)

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Self-protection of the first aider

Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Ensure adequate ventilation. Do not breathe vapour. Avoid all contact. Contaminated clothing should be laundered before reuse.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. IF exposed or concerned: Get medical advice/attention.

Skin Contact

IF ON SKIN: Remove contaminated clothing and wash all affected areas with plenty of water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention.

Eye Contact

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.
Ingestion	IF SWALLOWED: Rinse mouth. Make victim drink plenty of water. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless instructed to do so by medical personnel. Call a POISON CENTER/doctor if you feel unwell. IF exposed or concerned: Get medical advice/attention.
Most important symptoms and effects, both acute and delayed	Causes serious eye irritation. May cause drowsiness or dizziness. May cause cancer. Repeated exposure may cause skin dryness or cracking. May produce an allergic reaction in persons already sensitised.
Indication of any immediate medical attention and special treatment needed	Treat symptomatically. IF SWALLOWED: Material may be aspirated into the lungs and cause chemical pneumonitis

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media	
Suitable Extinguishing Media	Extinguish with carbon dioxide, dry chemical, foam or waterspray.
Unsuitable extinguishing Media	Do not use water jet.
Special hazards arising from the substance or mixture	May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide. Prevent liquid entering sewers, basements and workpits; vapour may create explosive atmosphere. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. Prevent liquid entering sewers, basements and workpits; vapour may create explosive atmosphere. May form explosive peroxides.
Special protective equipment and precautions for fire fighters	Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Caution - spillages may be slippery. Ensure adequate ventilation. Stop leak if safe to do so. Eliminate all ignition sources if safe to do so. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use personal protective equipment as required. See Section: 8. Do not breathe vapour.
Environmental precautions	Avoid release to the environment. Do not allow to enter drains, sewers or watercourses.
Methods and material for containment and cleaning up	Use non-sparking equipment when picking up flammable spill. Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal. Ventilate the area and wash spill site after material pick-up is complete. Dispose of this material and its container as hazardous waste.
Reference to other sections	See Section: 8, 13

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling	Ensure operatives are trained to minimise exposures. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Ensure adequate ventilation. Do not breathe vapour. In case of inadequate ventilation wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. May form explosive mixture with air particularly in enclosed spaces. Take precautionary measures against static discharges. Wear protective gloves/protective clothing/eye protection/face protection. Avoid all contact. Do not eat, drink or smoke when using this product.
Conditions for safe storage, including any incompatibilities	Ground/bond container and receiving equipment. Keep only in original container. Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. May form explosive mixture with air particularly in enclosed spaces. Keep away

	from direct sunlight.
Storage temperature	Ambient.
Incompatible materials	Keep away from: Flammable liquid, Oxidizing agents, Corrosive Substances, Alcohols.
Specific end use(s)	See Section: 1.2

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational Exposure Limits

SUBSTANCE	CAS No.	ACGIH® TLV® (ppm)		OSHA PEL (ppm)		Note
		TWA	STEL	TWA	STEL	
Ethyl methyl ketone	78-93-3	200	590	-	-	OSHA
		200	-	300	-	ACGIH
Formaldehyde	50-00-0	0.75		2		OSHA
		-		0.3^		ACGIH, SEN, A2

Source: ACGIH: American Conference of Governmental Industrial Hygiene. TLV: Threshold Limit Value (ACGIH) PEL (OSHA)
^ Ceiling limit value (15 min)
SEN: Confirmed potential for worker sensitization as a result of dermal contact and/or inhalation exposure, based on weight of scientific evidence.
A2: Suspected Human Carcinogen: Human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as a confirmed human carcinogen; OR, the agent is carcinogenic in experimental animals at dose(s) , by route(s) of exposure, at site(s), of histological type(s), or by mechanism(s) considered relevant to worker exposure. The A2 is primarily when there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals with relevance to humans.

Alberta: Occupational Health And Safety Code, 2009; Quebec: Health and Safety Work Act, 2016

SUBSTANCE	CAS No.	8-hour Occupational Exposure Limits			15-minute or ceiling (c) Occupational Exposure Limits		Note
		ppm	mg/m³	f/cc	STEL (ppm)	STEL (mg/m³)	
Ethyl methyl ketone	78-93-3	200	590	-	300	885	Alberta
		50	150	-	100	300	OEL
Formaldehyde	50-00-0	0.75	0.9	-	1	1.3	Alberta
		-	-	-	2	3	OEL

Source: Alberta: Occupational Health And Safety Code, 2009
OEL: Quebec Work Health and Safety Regulations, Health and Safety Work Act, (Chapter S – 2.1, a. 223)

British Columbia: Occupational Health and Safety Guidelines, 2015; Northwest Territories: Occupational Health and Safety Regulations, 2012; Yukon Territory: Occupational Health and Safety Act, 1986

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Ethyl methyl ketone	78-93-3	50	-	100	-	WEL
		200	-	300	-	NW
		200	590	250	740	YK
Formaldehyde	50-00-0	0.3	-	1	-	WEL, SD, SR
		0.3	-	-	-	NW, Schedule R

Source: WEL: Occupational Health and Safety Guidelines Part 5: Chemical Agents and Biological Agents (British Columbia)
NW: WSCC, Occupational Health and Safety Regulations, Northwest Territories Volume 3
Yukon Territory (YK): Occupational Health and Safety Act. O.I.C. 1986/164 Occupational Health Regulations.
SD: Sensitisation (Dermal)
SR: Respiratory sensitization
Schedule R: Advice on Additional Personal Protection (APP)

Ontario: Occupational Health and Safety Act, 1990; Saskatchewan: Occupational Health and Safety Regulations, 1996.

SUBSTANCE	CAS No.	Time Weighted Average (TWA)	STEL (ppm)	Note
Ethyl methyl ketone	78-93-3	200	300	WEL
		200	300	SK
Formaldehyde	50-00-0	-	1	WEL
		-	0.3	SK, SEN, T20

Source: WEL: Occupational Health and Safety Act, R.R.O. 1990, Regulation 833, CONTROL OF EXPOSURE TO BIOLOGICAL OR CHEMICAL AGENTS (Ontario)
Saskatchewan (SK): Occupational Health and Safety Act, 1993. O-1.1 REG 1 Occupational Health and Safety Regulations, 1996.SEN: Confirmed potential for worker sensitization as a result of dermal contact and/or inhalation exposure, based on weight of scientific evidence.

Biological limit value Not established.

SUBSTANCE	CAS No.	Biological exposure determinant factors	Biological Exposure Indices	Sampling Time	Note
Ethyl methyl ketone	78-93-3	Ethyl methyl ketone: Urine	2 mg/L	End of Shift	Ns

Source: 2015 ACGIH Biological Exposure Indicies (BEIs)
Ns - Nonspecific

Exposure controls

Appropriate engineering controls

Ensure operatives are trained to minimise exposures. Ensure adequate ventilation. Atmospheric levels should be controlled in compliance with the occupational exposure limit.

Individual protection measures, such as personal protective equipment (PPE)

General hygiene measures for the handling of chemicals are applicable. Keep good industrial hygiene. Avoid all contact. Do not breathe vapour. Wash hands before breaks and after work. Keep work clothes separately. Do not eat, drink or smoke at the work place. IF exposed: Flush with fresh water if contact with skin or eyes.

Eye/face protection

Wear protective eye glasses for protection against liquid splashes. Wear eye protection with side protection.

Skin protection

Hand protection:
Wear impervious gloves. Protective index 6, corresponding > 480 minutes of permeation time. Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

Suitable materials: Butyl rubber (Minimum thickness: 0.7mm), Nitrile rubber (Minimum thickness: 0.4mm)

Body protection:
Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. Open system(s): Wear suitable respiratory protective equipment. A suitable mask with filter type A may be appropriate.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties	Physico-chemical properties of substance Methyl ethyl ketone
Appearance	Viscous tan Coloured liquid
Odour	Ketone Odour
Odour threshold	Not available.
pH	Not established.
Melting point/freezing point	-86℃
Initial boiling point and boiling range	82.3℃ (Mixture)
Flash point	-9 ℃ [Closed cup]
Evaporation rate (Water = 1)	1 (BuAc = 1)
Flammability (solid, gas)	Not applicable - liquid mixture
Upper/lower flammability or explosive limits	LEL: 2.0 UEL: 10.0
Vapour pressure	12.6 kPa at 25ºC
Vapour density	>1 (Air = 1)
Relative density	0.81 g/cm^3 (H_2O = 1)
Solubility(ies)	>10% (Water)
Partition coefficient: n-octanol/water	0.3 log Pow (40 ℃)
Auto-ignition temperature	404 ℃
Decomposition Temperature	Not available.
Viscosity	2.038 mPa s (Dynamic viscosity) 25 ℃
Explosive properties	Not available.
Oxidising properties	Not oxidising.
Other information	Volatile Organic Compound Content (%): 675 g/L

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Highly flammable liquid and vapour. The vapour may be invisible, heavier than air and spread along ground. May form explosive mixture with air particularly in enclosed spaces.
Conditions to avoid	Keep away from heat, sources of ignition and direct sunlight.
Incompatible materials	Flammable liquid, Oxidizing agents, Corrosive Substances, Alcohols, Strong Acids and Alkalis.
Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity - Ingestion	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.
Acute toxicity - Inhalation	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 >20.0 mg/l.
Acute toxicity - Skin Contact	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.
Skin corrosion/irritation	Based upon the available data, the classification criteria are not met.
Ethyl methyl ketone:	Prolonged skin contact will result in defatting of the skin, leading to irritation, and in some cases, dermatitis. (Smith R & Mayers MR, 1944)
Serious eye damage/irritation	Eye Irritation, Category 2; Causes serious eye irritation.
Ethyl methyl ketone:	Eye Irritation, Category 2 Irritating to eyes. (OECD 405)
Formaldehyde:	Eye damage, category 1 No data
Respiratory or skin sensitization	Based upon the available data, the classification criteria are not met.

Germ cell mutagenicity	Based upon the available data, the classification criteria are not met.
Carcinogenicity	Carcinogenicity - Category 1B; Suspected of causing cancer.
Formaldehyde:	Carcinogenicity - Category 1B Local effects, Stomach (rat), Chronic oral exposure. NOAEC 10 mg/kg bw/day (Tobe M. et al., 1989)
Reproductive toxicity	Based upon the available data, the classification criteria are not met.
STOT - single exposure	Specific target organ toxicity — single exposure, Category 3; May cause drowsiness and dizziness.
Ethyl methyl ketone:	Rats at all dose levels: gait and/or posture abnormalities. Higher dose groups some rats were comatose or prostrate within a few hours of dosing, with some animals being unconscious for 24 hours. (OECD 423)
STOT - repeated exposure	Based upon the available data, the classification criteria are not met.
Aspiration hazard	Based upon the available data, the classification criteria are not met.
Other information	None known.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity	Based upon the available data, the classification criteria are not met. Estimated Mixture LC50 >100 mg/l (Fish)
Persistence and degradability	Readily biodegradable.
Bioaccumulative potential	The product has low potential for bioaccumulation.
Mobility in soil	The product is predicted to have high mobility in soil. Water Soluble.
Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods	Dispose of this material and its container as hazardous waste. Send after pre-treatment to a appropriate hazardous waste incinerator facility according to legislation.

SECTION 14: TRANSPORT INFORMATION

		ADR/RID	**IMDG**	**IATA/ICAO**
14.1	**UN number**	UN 1193	UN 1193	UN 1193
14.2	**UN proper shipping name**	ETHYL METHYL KETONE (METHYL ETHYL KETONE)	ETHYL METHYL KETONE (METHYL ETHYL KETONE)	ETHYL METHYL KETONE (METHYL ETHYL KETONE)
14.3	**Transport hazard class(es)**	3	3	3
14.4	**Packing group**	II	II	II
14.5	**Environmental hazards**	Not classified	Not classified as a Marine Pollutant.	Not classified
14.6	**Special precautions for user**	See Section: 2		
14.7	**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable		

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

CEPA, Domestic Substances List	Ethyl methyl ketone: Yes Formaldehyde: Yes
CEPA, Priority Substances List	Formaldehyde: PSL 2
CEPA, List of Toxic Substances (Schedule 1)	Ethyl methyl ketone: VOC - Item 65 Formaldehyde: Item 58
CEPA, National Pollutant Release Inventory	Ethyl methyl ketone: Threshold Category: Part 1A, Mass Threshold: 10 tonnes Concentration threshold: 1%; Threshold Category: Part 5, Mass Threshold: 1

	tonnes of 10 tonnes Total VOC air release, Concentration threshold: N/A
CEPA, Environmental Emergency Regulations	Formaldehyde: Threshold Category: Part 1A, Mass Threshold: 10 tonnes MPO Concentration threshold: 1%; Threshold Category: Part 5, Mass Threshold: 1 tonnes of 10 tonnes Total VOC air release, Concentration threshold: N/A Formaldehyde: Part 2 - Substance Hazardous When Inhaled. Concentration: ≥ 10% w/w. Volume (Minimum): 6.8 tonnes (metric).
Non-Regional	
IARC Monographs**,** List of Classifications	Formaldehyde: Yes - Group 1

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Not applicable – V1.0

Date of First Issue: **06 April 2018**
Date of Issue: **06 April 2018**

References:
Existing Safety Data Sheet (SDS).
EU: Harmonised Classification(s) for and Existing ECHA registration(s) for Ethyl methyl ketone (CAS No. 78-93-3) and Formaldehyde (CAS No. 50-00-0).

Literature References:

1. Smith R & Mayers MR, 1944, Study of poisoning and fire hazards of butanone and acetone, Industrial Hygiene: 23, 174-176
2. Tobe M, Naito K, Kurokawa Y, 1989, Chronic toxicity study on formaldehyde administered orally to rats, Toxicology 56: 79-86

LEGEND

LTEL: Long Term Exposure Limit
STEL: Short Term Exposure Limit
DNEL: Derived No Effect Level
PNEC: Predicted No Effect Concentration
PBT: PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
IARC: International Agency for Research on Cancer
NTP: National Toxicology Program
OSHA = Occupational Safety and Health Administration
NIOSHTIC: National Institute for Occupational Safety and Health Technical Information Center

ACGIH: American conference of Governmental Industrial Hygiene
BEI: Biological Exposure Indices (ACGIH)
TLV: Threshold Limit Value (ACGIH)
TWA: Time Weighted Average
VOC: Volatile Organic Compound
EU: European Union
CEPA (Canadian Environmental Protection Act)

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