

SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

Cascomel® MF-2LM

Section 1. Product and company identification

GHS product identifier : Cascomel® MF-2LM
MSDS Number : 000000103298
Product type : Methylated Melamine Resin Systems
Material uses : General Purpose Resin Applications

Manufacturer/Supplier/Importer : Hexion Inc.
 180 East Broad Street
 Columbus, Ohio
 43215 USA

Contact person : 4information@hexion.com

Telephone : For additional health and safety or regulatory information, call
 1 888 443 9466.

Emergency telephone number : For Emergency Medical Assistance
 Call Health & Safety Information Services
 1-866-303-6949


For Emergency Transportation Information
 CHEMTREC US Domestic (800) 424-9300
 CHEMTREC International (703) 527-3887
 CANUTEC CA Domestic (613) 996-6666

Part of the CASCO® Brand of Adhesives and Resins from Hexion Inc.

Section 2. Hazards identification

Classification of the substance or mixture : RESPIRATORY SENSITIZATION - Category 1
 SKIN SENSITIZATION - Category 1
 CARCINOGENICITY - Category 1B

GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H317 May cause an allergic skin reaction.
 H350 May cause cancer.

Precautionary statements

- General** : Not applicable.
- Prevention** : Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves.
Wear eye or face protection.
Wear protective clothing.
Wear respiratory protection.
Avoid breathing vapor.
Contaminated work clothing must not be allowed out of the workplace.
- Response** : IF exposed or concerned:
Get medical attention.
IF INHALED:
If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
If experiencing respiratory symptoms:
Call a POISON CENTER or physician.
IF ON SKIN:
Wash with plenty of soap and water.
Wash contaminated clothing before reuse.
If skin irritation or rash occurs:
Get medical attention.
- Storage** : Store locked up.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Other hazards which do not result in classification** : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	% by weight	CAS number
Formaldehyde	0.1 - 0.3	50-00-0

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures**Description of necessary first aid measures**

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the

Inhalation	<p>upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.</p> <p>: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In the event of any complaints or symptoms, avoid further exposure.</p>
Skin contact	<p>: Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.</p>
Ingestion	<p>: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p>

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: No specific treatment.
Protection of first aid personnel	: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	: Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: None known.
Specific hazards arising from the chemical	: In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal	: Decomposition products may include the following materials:

decomposition products	halogenated compounds metal oxide/oxides
Special protective actions for fire-fighters	: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill	: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill	: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13 of SDS). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	: Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be
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- employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** :
- Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** :
- Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Formaldehyde	<p>ACGIH TLV (2000-03-01) Ceiling, is a limit indicating the maximum concentration of a chemical substances in the breathing zone that should not be exceeded. 0.37 mg/m³ 0.3 ppm</p> <p>OSHA PEL (1993-06-30) Time Weighted Average (TWA) 0.75 ppm Short Term Exposure Limit value for a 15-minute reference period expressed in parts per million or in mg/m³. 2 ppm</p> <p>NIOSH REL (1994-06-01) Time Weighted Average (TWA) 0.016 ppm Ceiling, is a limit indicating the maximum concentration of a chemical substances in the breathing zone that should not be exceeded. 0.1 ppm</p>

- Recommended monitoring procedures** :
- If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Appropriate engineering controls** :
- Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust

- ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** :
- Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** :
- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** :
- Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

- Hand protection** :
- Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** :
- Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** :
- Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** :
- Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** :
- Liquid
- Color** :
- Clear.
- Odor** :
- Pungent

Odor threshold	:	Not available
pH	:	8.5 - 9.5
Melting point/ Freezing point	:	0 °C (32 °F)
Boiling point	:	100 °C (212 °F)
Flash point	:	Setaflash Closed Cup: Greater than 100 °C (212 °F) (ASTM D 3828)
Burning time	:	Not available
Burning rate	:	Not available
Evaporation rate	:	Not applicable.
Flammability (solid, gas)	:	Not available
Lower and upper explosive (flammable) limits	:	Lower: Not applicable. Upper: Not applicable.
Vapor pressure	:	Not available
Vapor density	:	Not available
Relative density	:	1.23 - 1.25
Solubility	:	Not available
Solubility in water	:	Complete
Partition coefficient: n-octanol/water	:	Not available
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
SADT	:	Not available
Viscosity	:	Dynamic: Not applicable. Kinematic: Not available

Other information

The SDS is not to be used as a specification sheet. For Specific technical information on the product listed above, a sales specification sheet should be obtained from your Hexion representative.

Section 10. Stability and reactivity

Reactivity	:	Hazardous polymerization may occur under certain conditions of storage or use.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions to avoid	:	Avoid exposure - obtain special instructions before use.

- Incompatible materials** : Reactive or incompatible with the following materials:
oxidizing materials
acids
- Hazardous decomposition products** : Decomposition products may include the following materials:, carbon monoxide, carbon dioxide, aldehydes (including formaldehyde), oxides of nitrogen, particulate matter, other organic compounds

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Formaldehyde				
	LD50 Oral	Rat	800 mg/kg	-
	LC50 Inhalation	Rat	0.578 mg/l	2 h

Conclusion/Summary : Not available

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Formaldehyde	Skin - Erythema/E schar	Rabbit	2.5	20 hrs	-
	Skin - Edema	Rabbit	3	20 hrs	-
	eyes - Cornea opacity	Mouse	> 3		-

Conclusion/Summary

- Skin** : Not available
eyes : Not available
Respiratory : Not available

Sensitization

Conclusion/Summary

- Skin** : Not available
Respiratory : Not available

Mutagenicity

Conclusion/Summary : Not available

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Formaldehyde	-----	-		
Remarks:	The National Toxicology Program (NTP) classifies formaldehyde as “known to be a human carcinogen” with respect to nasopharyngeal cancer, sinonasal cancer and myeloid leukemia. The International Agency for Research on Cancer (IARC) classifies formaldehyde as “carcinogenic to humans”. U.S.			

	<p>OSHA regulates formaldehyde as a potential human carcinogen. See the OSHA Formaldehyde Workplace Standard at 29 CFR 1920.1048 (the "OSHA Standard"). Safe handling and use instructions are provided in this SDS and in the OSHA Standard. OSHA has identified 0.5 ppm, calculated as an eight-hour time-weighted average ("TWA") concentration, as the "Action Level". Please review and understand the guidance contained in this MSDS, and refer to the OSHA Standard for regulatory requirements that might be applicable to your operation and use. Many studies and other evaluations have been performed concerning formaldehyde's potential to cause cancer. To review some of these studies and for further information go to www.osha.gov/SLTC/formaldehyde; http://monographs.iarc.fr; http://ntp-server.niehs.nih.gov; http://epa.gov/iris/subst/0419.htm; http://www.nap.edu/catalog.php?record_id=13142 and other authoritative websites.</p>
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Conclusion/Summary : Not available

Reproductive toxicity

Conclusion/Summary : Not available

Teratogenicity

Conclusion/Summary : Not available

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Formaldehyde	Category 3		Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Formaldehyde	Category 2		respiratory tract skin

Aspiration hazard

Not available

Information on the likely routes of exposure : Not available

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin contact : May cause an allergic skin reaction.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.
Inhalation : Adverse symptoms may include the following:

		wheezing and breathing difficulties
		asthma
Skin contact	:	Adverse symptoms may include the following:
		irritation
		redness
Ingestion	:	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	:	Not available
Potential delayed effects	:	Not available

Long term exposure

Potential immediate effects	:	Not available
Potential delayed effects	:	Not available

Potential chronic health effects

Conclusion/Summary	:	Not available
General	:	Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity	:	May cause cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	:	No known significant effects or critical hazards.
Teratogenicity	:	No known significant effects or critical hazards.
Developmental effects	:	No known significant effects or critical hazards.
Fertility effects	:	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	206,328.4 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
formaldehyde			
	Acute LC50 6.7 mg/l -	Fish - Striped bass	96 h
	Acute LC50 6.9 mg/l -	Fish - Zebra danio	6 d
	Acute No-observable-effect-concentration > 47.9 mg/l -	Fish - Medaka, high-eyes	28 d
	Acute EC50 5.8 mg/l Fresh water	Aquatic invertebrates. Water flea	2 d
	Acute EC50 4.9 mg/l Fresh water	Aquatic plants - Algae	72 h
	Acute EC50 4.3 mg/l Fresh water	Aquatic plants - Algae	48 h
	Acute EC50 19 mg/l -	Micro-organism - Soil	3 h

		organisms	
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Conclusion/Summary : Not available

Persistence/degradability

Conclusion/Summary : Not available

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Formaldehyde	0.35	< 1	low

Mobility in soil

Soil/water partition coefficient (KOC) : Not available

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

International transport regulations

Regulatory information	UN/NA number	Proper shipping name	Classes/*PG	Reportable Quantity (RQ)
CFR		Non-regulated		
TDG		Non-regulated		

IMO/IMDG Non-regulated

IATA (Cargo) Non-regulated

*PG : Packing group

Special precautions for user : Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

United States

HCS Classification : Carcinogen

U.S. Federal regulations : **United States - TSCA 12(b) - Chemical export notification:** None required.
United States - TSCA 5(a)2 - Final significant new use rules: Not listed
United States - TSCA 5(a)2 - Proposed significant new use rules: Not listed
United States - TSCA 5(e) - Substances consent order: Not listed
SARA 311/312 Classification - Immediate (acute) health hazard, Delayed (chronic) health hazard

SARA 313

		Product name	CAS number
Form R - Reporting requirements	:	Formaldehyde	50-00-0
Supplier notification	:	Formaldehyde	50-00-0

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

California Prop. 65: : WARNING: This product contains a chemical known to the State of California to cause cancer., WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Formaldehyde	Yes.	No.	40 µg/day	No.
Methanol	No.	Yes.	No.	No.

United States inventory (TSCA 8b) : All components are listed or exempted.

International regulations

International lists :

- Australia inventory (AICS):** All components are listed or exempted.
- Canada inventory:** All components are listed or exempted.
- Japan inventory:** All components are listed or exempted.
- China inventory (IECSC):** All components are listed or exempted.
- Korea inventory:** All components are listed or exempted.
- New Zealand Inventory (NZIoC):** All components are listed or exempted.
- Philippines inventory (PICCS):** All components are listed or exempted.
- United States inventory (TSCA 8b):** All components are listed or exempted.
- Taiwan inventory (CSNN):** Not determined.

Section 16. Other information

Hazardous Material Information System III (U.S.A.) :

Health	*	1
Flammability		1
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

Full text of abbreviated H statements : Not applicable.

History

Date of printing : 02/20/2017
Date of issue/Date of revision : 11/16/2016
Date of previous issue : 03/27/2015
Version : 7.0
Prepared by : Product Safety Stewardship
Key to abbreviations :

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
- UN = United Nations

References : Not available

Notice to reader

The information provided herein was believed by Hexion Inc. ("Hexion") to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. All products supplied by

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