



MATERIAL SAFETY DATA SHEET

Material Safety Data Sheet – OSHA 174

May be used to comply with OSHA's Hazard communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

US Department of Labor

Occupational Safety and Health Administration (Non-Mandatory Form) Form Approved OMB No. 1218-0072

Manufacturer: S.T.A.R., INC.
1150 Milepost Dr.
Columbus, OH 43228

Emergency Phone No. CHEM-TEL 800-255-3924
Information Phone No. 614-870-0744
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SECTION I- IDENTIFICATION

Product Name: STAR MACRO-FLEX, Reinforcing Latex Additive, for sealcoatings based on Refined Coal Tar.

Chemical Family - Nitrile Rubber Emulsion Latex.

Chemical Name - Acrylic polymer Emulsion

Prepared by - G.C. Dubey

H.M.I.S.

Health = 1

Fire = 1

Reactivity = 0

SECTION II- INGREDIENTS

<u>Ingredients</u>	<u>CAS NO.</u>	<u>Wt%, Less Than</u>
n-Methylol-acrylamide	0000924-42-5	0.68
Acrylamide	0000079-06-1	0.3
Formaldehyde	0000050-00-0	0.08
Water	2-18-5	approx. 60%
Latex Polymer	Proprietary	approx. 40%

Notes: Total weight percentage of all the listed ingredients could be below 100, indicating other unlisted ingredients that are not considered hazardous by any federal (OSHA, WHMIS, SARA), any state or province or local Right-To-Know regulations.

SECTION III- PHYSICAL DATA

<u>Boiling Point</u>	<u>Vapor Pressure</u>	<u>Vapor density</u>	<u>Appearance</u>
212 °F	(mm Hg @ 20 °C) Approx. 17	(Air=1) 1	Milky liquid with mild rubber odor. Light blue color.
<u>Evaporation Rate</u> <u>(Water=1)</u>	<u>Specific Gravity</u>	<u>pH</u>	<u>Freezing Point</u>
1	1.00	6.00-7.00	32 °F / 0 °C
<u>Miscibility</u>	<u>Threshold Odor</u>	<u>Water/Oil Dist. Coeff.</u>	
Dilutable with water	(ppm) –N/A	N/A	

QUALITY ▲ PERFORMANCE ▲ VALUE ▲ INNOVATION ▲ SERVICE



SECTION IV- HAZARD IDENTIFICATION

Routes Of Entry - Skin, eyes, inhalation, ingestion.
Effects Of Overexposure - Acute: YES **Chronic:** YES

Acute Health Effects:

Eyes - May cause eye irritation.
Skin - May cause irritation. Repeated and prolonged contact may cause irritation. A single exposure is not likely to cause irritation but repeated exposure may cause skin irritation. A single prolonged exposure may result in acrylamide being absorbed in harmful amounts. May cause allergic skin reaction in sensitive individuals.
Ingestion - May cause nausea, cramps, vomiting, diarrhea or acute effects.
Inhalation - May cause headaches and nausea. Vapors can irritate respiratory tract. Overexposure by inhalation will produce neurotoxicity.
Signs of overexposure- Fatigue, skin peeling, muscular weakness, numbness and sensory impairment.

Chronic Health Effects:

Acrylamide: repeated exposures to small amounts may cause central and peripheral nervous systems effects with signs and symptoms described above under “ Acute health Effects”.

European Community- Category 2 carcinogen, category 2 mutagen and category 3 reproductive hazard.

Signs & Symptoms of exposure- Headache, drowsiness, nausea, dizziness, irritation.
Target organs- Central nervous system.
Conditions Aggravated By Exposure: People with sensitive airways (e.g. asthmatics) may react to airborne vapors. Persons with pre-existing skin problem may be aggravated by contact with liquid product.
Carcinogenic:
ACRYLAMIDE- IARC- Group 2A; NTP- Anticipated Carcinogen,
 OSHA- Regulated as a carcinogen, ACGIH- A3, European Community Category 2 carcinogen.

Emergency and First Aid Procedures

Eyes- Immediately flush with plenty of water for 15 minutes, call a physician, if condition persists.
Skin- Remove and wash contaminated clothing. Wash the skin thoroughly with plenty of water and soap, for a min. of 15-20 minutes. Consult a doctor, if irritation develops.
Inhalation- move to fresh air, administer oxygen and call a physician..
Ingestion- Do not induce vomiting, rinse mouth with water. Never give anything by mouth to an unconscious person. Seek a physician immediately, show M.S.D.S. or label.

SECTION V- FIRE AND EXPLOSION HAZARD DATA

N/A= Not Available

NFPA Flammability Classification	Flash Point (method used)	Flammable Limits	
N/A	N/A	LEL	UEL
		N/A	N/A
Explosive Power	Burning Rate		
N/A	N/A		
UN/NA/PIN #	Static Sensitive	Impact Sensitive	
Not Established	NO	NO	



Combustion Products

CO, CO₂, Hydrocarbon Compounds, Oxides of Nitrogen.

Extinguishing Media

Foam, Dry Chemical. Water Spray.

Unusual Fire and Explosion Hazards: Containers may rupture due to steam pressure build-up. Product may splatter if the temperature exceeds the boiling point of water. If solids ignite, toxic and irritating gases will be emitted.

Special Fire Fighting Procedures: Cool exposed containers to prevent steam pressure build-up. Wear self-contained breathing apparatus (SCBA), equipped with full facepiece and operated in a pressure demand mode (or other positive pressure mode) and approved protective clothing. Personnel who or not such equipped should leave the area to protect them from exposure to hazardous combustion products. Wear SBCA in an enclosed or poorly ventilated area during the control of the fire and subsequent clean up.

SECTION VI- ACCIDENTAL RELEASE OR LEAK PROCEDURES

- Limit spread of leak or spill.
 - Ventilate the area.
 - Avoid falls as the floors may become slippery when the product is spilled.
 - Wear approved respiratory protection. Wear suitable protective clothing, gloves and eye / face protection.
 - Soak up with an inert absorbent material like sand or earth and pick up waste material. Put in a sealed approved container.
 - Keep material out of sewers, drains and bodies of water. Dispose of in accordance with federal, state, and local regulations.
- Evacuation Instructions- Not applicable.

SECTION VII SAFE HANDLING, STORAGE AND PROTECTION INFORMATION

Handling & Personal protection Instructions

Ventilation: Use local exhaust ventilation to control mists or vapors generated when using this product. Ventilation must be adequate to keep exposure below regulated limits.

Respiratory Protection: None required, normally. Appropriate respiratory protection should be selected by a qualified person if exposures are expected to be excessive.

Protective Gloves: Rubber gloves, chemically resistant.

Eye Protection: Wear safety glasses, goggles or face shield.

Other Protective Equipment: Wear suitable protective clothing.

Hygienic Practices: Wash hands before eating, smoking or using washrooms. Smoke only in designated areas.

Chemical name	ACGIH	ACGIH	OSHA	OSHA
	TWA	STEL	TWA	STEL
Water	N/E	N/E	N/E	N/E
Polymer /solids	N/E	N/E	N/E	N/E
n-Methylol-acrylamide	N/E	N/E	N/E	N/E
Acrylamide	0.03 mg/m ³	N/E	0.03 mg/m ³	N/E
Formaldehyde N/E	N/E	0.30 ppm (ceiling)	0.75 ppm	2.00 ppm

Notes: FORMALDEHYDE: Workplace exposure to formaldehyde is regulated by OSHA 1910.1048 (CFR Title 29). This regulation requires labeling if handling, processing, and release will result in airborne concentrations above 0.5 ppm. Laboratory experiments simulating mixing or compounding of emulsions show that the airborne concentration of formaldehyde is not likely to exceed 0.1 ppm (0.1 mg/kg) when residual formaldehyde is <0.009% (<90 ppm or <90 mg/kg), in the wet emulsion. When the concentration in the wet emulsion exceeds approx. 800 ppm (approx. 800 mg/kg), the airborne concentration of formaldehyde could exceed 0.5 ppm (0.5 mg/kg). Purchasers of this product should not solely rely on Emerald Performance Materials data, but should do sufficient in-plant monitoring of formaldehyde levels to assure compliance of their operations.

Engineering controls

Always provide effective general and, when necessary, local exhaust ventilation to draw spray, aerosol, fume, mist and vapor away from workers to prevent routine inhalation. Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. (Ventilation guidelines/techniques may be found in publications such as Industrial Ventilation: American Conference of Governmental Industrial Hygienists, 13330 Kemper Meadow Drive, Cincinnati, OH 45420-1634, USA).

Eye/face protection

Wear eye protection

Skin Protection

Wear protective gloves.

Respiratory protection

Wear an approved respirator (e.g. an organic vapor respirator, a full face air purifying respirator for organic vapors, or a self-contained breather apparatus) whenever exposure to aerosol, mist, spray, fume or vapor exceed the exposure limit(s) of any chemical substance listed in this MSDS. Use respirator in accordance with manufacturer's use limitations and OSHA standard 1910.134 (29CFR).

General Protection

No additional information.

Storage

Do not store in open, un-labeled containers. Keep containers closed when not in use. Do not re-use empty containers commercially cleaned.
unless pre-cleaned

SECTION VIII- REACTIVITY DATA

<u>Stability</u>	<u>Conditions to Avoid</u>	<u>Incompatibility</u>
Stable	Keep from Freezing	(Materials to avoid) None special noted

Hazardous Decomposition Products - CO, CO₂, Oxides of Nitrogen, monomers, and some aliphatic and aromatic hydrocarbons.

Hazardous Polymerization - Will not occur.

Conditions to Avoid - N/A

SECTION IX- TOXICOLOGICAL INFORMATION

Caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure.

<u>Chemical Name</u>	<u>LC50 Inhalation</u>	<u>Species</u>	<u>LD50 Oral</u>	<u>Species</u>	<u>LD50 Skin</u>	<u>Species</u>
Water	N/E		N/E		N/E	
Polymer/solids	N/E		N/E		N/E	
n-Methylol-acrylamide	N/E		N/E		N/E	
Acrylamide	N/E		124 mg/kg	Rat/adult	1680 uL/kg	Rabbit/adult
Formaldehyde	250-478 ppm, 4 hr)	Rabbit/ adult	100 mg/kg	Rat/adult	270 mg/kg	Rabbit/adult

<u>Chemical Name</u>	<u>LC50 Inhalation</u>	<u>Species</u>	<u>LD50 Oral</u>	<u>Species</u>	<u>LD50 Skin</u>	<u>Species</u>
Water	N/E		N/E		N/E	
Polymer/solids	N/E		N/E		N/E	
n-Methylol-acrylamide	N/E		N/E		N/E	
Acrylamide	N/E		N/E		400 MG/KG	Rat/adult
Formaldehyde	N/E		N/E		N/E	

No toxicity studies have been conducted on this product.

Notes: No Additional information.

SECTION X- ECOLOGICAL INFORMATION

No ecological testing has been conducted on this product.

Notes: no additional information.

SECTION XI- DISPOSAL INFORMATION

Dispose of waste at a licensed waste disposal company in accordance with local regulations. Incinerate waste product when in liquid form (i.e. as supplied) in a properly permitted (approved) incineration facility in accordance with federal, state, and local regulations. Liquids cannot be disposed of in a landfill. Solid products can be sent to an approved landfill, or preferably incinerated. Liquid product generally requires some pre-disposal treatment to separate the liquid from the polymeric portion. Typically, this is done by coagulating the polymer and removing the liquid. The liquid portion may be discharged to an industrial or public treatment works with approval of appropriate permitting authorities.

<u>Chemical Name</u>	<u>lbs.</u>	<u>kg</u>
Acrylamide	5000.00	2272.73
Formaldehyde	100.00	45.45

SECTION XII- TRANSPORTATION INFORMATION

UN/NA Number:	N/A	Hazard Class:	N/A	IMDG Class:	N/A
Packing Group	N/A	ICAO/IATA Class:	N/A	TDG Class:	N/A

Name of Material- Not required.

Notes: No additional information.

SECTION XIII- REGULATORY INFORMATION

This MSDS has been prepared in accordance with the hazard criteria of the OSHA Hazard Communication Standard, 29 CFR 1910.1200

U.S. Toxic Substances Control Act:

All components of this product are either listed on the U.S. Toxic Substances Control Act (TSCA) inventory of chemicals or are otherwise compliant with TSCA regulations.

U.S. CERCLA-SARA:

SARA Title II Section 312 Hazard Category (40 CFR 311/312): Chronic Health Hazard

SARA SECTION 313: This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know-Act of 1986 and 40 CFR 372:

<u>Chemical Name</u>	<u>CAS #</u>
n-Methylol-acrylamide	0000924-42-5
Acrylamide	0000079-06-1

California Proposition 65:

Warning: The following ingredients present in the product are known to the state of California to cause Cancer:

<u>Chemical Name</u>	<u>CAS #</u>
n-Methylol-acrylamide	0000924-42-5
Acrylamide	0000079-06-1
Formaldehyde	0000050-00-0

Warning; The following ingredients present in the product are known to the state of California to cause birth defects, or other reproductive hazards:

None known to be present or none in reportable amounts for occupation exposure as per OSHA's approval of the California Hazard Communication Standard, Federal Register, page 31159 ff, 6 June 1997.

The chemical identity of some or all components present is confidential business information (trade secret) and is being withheld as permitted by 29CFR1910.1200 (i).

Canadian Domestic Substances List (DSL):

All components in this product are on the Canadian Domestic Substances List (DSL) or are exempt from listing.

Canadian Ingredient Disclosure List:

The following components on the Canadian Ingredient Disclosure List (WHMIS):

Acrylamide
Formaldehyde

Canadian WHMIS Class:

D2A

Notes: No Additional information.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

SECTION XIV- OTHER INFORMATION

Notes: No additional information.

HMIS Rating	Flammability: 0	Reactivity: 0	Personal Protection: X
Health: 1			
NFPA Rating Health: 1	Flammability: 0	Reactivity: 0	

Key: 0-Insignificant; 1=Slight; 2=Moderate; 3=High; 4=Extreme

Hazardous Materials Identification System (HMIS), National Paint and Coating Assn. Rating applies to product "as packaged" (i.e., ambient temperature). Ratings are based upon HMIS® Rating Manual 1984. Values do not reflect HMIS® III. National Fire Protection Association (NFPA) rating identifies the severity of hazards of material during a fire emergency (i.e., "on fire").

Legend:

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ACGIH: American Conference of Governmental Industrial Hygienists
A1: Confirmed human carcinogen
A2: Suspected human carcinogen
A3: Animal carcinogen
CAS No: Chemical Abstract Service Registry Number
IARC: International Agency for Research on Cancer
Group 1: Probably Carcinogenic to humans
Group 2A: Possibly carcinogenic to humans
Group 3: Unclassified as a carcinogen to humans
MSHA: Mine safety and Health Administration
NIOSH: National Institute for Occupational Safety and Health
NTP : National Toxicology Program
N/A: Not applicable.
N/E: None Establishes
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
PNOC: Particulates Not Otherwise Classified
RTK: Right To Know
STEL: Short Term Exposure Limit (15 minute Time Weighted Average)
TLV: Threshold Limit Value
C: Ceiling limit
S: Skin notation refers to the potential significant contribution to the overall exposure by the cutaneous route including mucous membranes and the eyes by direct skin contact with the substance.
WHMIS: Canadian Workplace Hazardous Materials Information System

SECTION XV- SPECIAL PRECAUTIONS

1. Keep out of reach of children.
2. For professional and industrial use only.
3. Do not handle until manufacturer's safety precautions have been read and understood.
4. Use only with adequate ventilation.
5. Do not take internally.
6. Avoid contact with eyes and skin. Liquid penetrates leather and shoes causing delayed burns.
7. Wash thoroughly after using. Practice safe hygiene principles.
8. Additional Technical Data Sheets and/or M.S.D.S.'s are available upon request.
9. Store between 50-100 °F. Keep the containers tightly closed after each use.
10. Additional Technical data Sheets and /or M.S.D.S.'s are available upon request.

THE RECOMMENDATIONS AND INFORMATION PROVIDED HEREIN ARE BELIEVED TO BE ACCURATE AS THE DATE HEREOF. HOWEVER, SUCH INFORMATION AND RECOMMENDATIONS ARE PROVIDED WITHOUT WARRANTY OF ANY KIND AND S.T.A.R., INC. DISCLAIMS ALL LIABILITY OR LEGAL RESPONSIBILITY FOR USE AND RELIANCE UPON THE SAME.