SAFETY DATA SHEET

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Modar™ 814 A RESIN
™ Trademark, Ashland or its subsidiaries, registered in various countries26049

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Ashland P.O. Box 2219 Columbus, OH 43216	Regulatory Information Number Telephone Emergency telephone number	1-800-325-3751 614-790-3333 1-800-ASHLAND (1-800-274-5263)
Product name	Modar™ 814 A RESIN ™ Trademark, Ashland or its subsidiaries, registered in various countries	
Product code	26049	

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid

WARNING! FLAMMABLE LIQUID AND VAPOR. MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY BE HARMFUL IF INHALED. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. MAY CAUSE ALLERGIC SKIN OR RESPIRATORY REACTION. MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN, CAUSE IRRITATION AND BURNS.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact

Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage. May cause allergic skin reaction. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, skin burns, and other skin damage. Individuals with direct skin contact with methyl methacrylate have experienced temporary loss of feeling and mild nerve damage in the fingers.

Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing of vapor or mist is possible. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.). May cause allergic respiratory reaction.

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material:, Skin, Upper respiratory tract, lung (for example, asthma-like conditions), Liver, kidney, Central nervous system, male reproductive system, auditory system

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:, metallic taste, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), Cough, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, effects on memory, loss of appetite, sleep disturbances, Lowered blood pressure, respiratory depression (slowing of the breathing rate), Shortness of breath, Lack of coordination, confusion, pain in the hands and feet, kidney damage, liver damage, Exposure to this product (or a component) may cause an allergic reaction (narrowing of the air passages of the lungs resulting in difficult breathing, tightness in the chest, coughing and wheezing) in some sensitive individuals. Other symptoms of an allergic reaction may include itchy and watery eyes, runny and stuffy nose, sweating, flushing, hives, rapid heart rate, and lowered blood pressure., Difficulty in breathing, irritability

Target Organs

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:, effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage, nasal damage, kidney damage, liver damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:, mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects

Carcinogenicity

Styrene is listed as a possible human carcinogen by the International Agency for Research on Cancer (IARC) and as reasonably anticipated to be a human carcinogen by the National Toxicology Program (NTP).

Reproductive hazard

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

Other information

Styrene readily reacts with low concentrations of halogens (for example, fluorine, chlorine, bromine, or iodine) to forma tear-producing substance.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No. / Trade Secret No.	Concentration
METHYLMETHACRYLATE	80-62-6	>=40-<50%
STYRENE	100-42-5	>=10-<15%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

Notes to physician

Hazards: No information available.
Treatment: No hazards which require special first aid measures.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO2), Water spray, Foam

Hazardous combustion products

carbon dioxide and carbon monoxide, Hydrocarbons, toxic fumes

Precautions for fire-fighting

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Water may be ineffective for extinguishment unless used under favorable conditions by experienced fire fighters. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes. Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

NFPA Flammable and Combustible Liquids Classification

Flammable Liquid Class IB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Ensure adequate ventilation. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Pay attention to the spreading of gases especially at ground level (heavier than air) and to the direction of the wind.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system. Local authorities should be advised if significant spillages cannot be contained.

Methods for cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Other information

Comply with all applicable federal, state, and local regulations. Suppress (knock down) gases/vapours/mists with a water spray jet.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

Storage

Store in a cool, dry, ventilated area, away from incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

METHYLMETHACRYLATE		**80-62-6**
ACGIH	time weighted average	50 ppm
ACGIH	Short term exposure limit	100 ppm
NIOSH	Recommended exposure	100 ppm

	limit (REL):	
NIOSH	Recommended exposure limit (REL):	410 mg/m3
OSHA Z1	Permissible exposure limit	100 ppm
OSHA Z1	Permissible exposure limit	410 mg/m3
ACGIH NIC	time weighted average	50 ppm
ACGIH NIC	Short Term Exposure Limit (STEL):	100 ppm
STYRENE		**100-42-5**
ACGIH	time weighted average	20 ppm
ACGIH	Short term exposure limit	40 ppm
NIOSH	Recommended exposure limit (REL):	50 ppm
NIOSH	Recommended exposure limit (REL):	215 mg/m3
NIOSH	Short term exposure limit	100 ppm
NIOSH	Short term exposure limit	425 mg/m3
OSHA Z2	time weighted average	100 ppm
OSHA Z2	Ceiling Limit Value:	200 ppm
OSHA Z2	Maximum concentration:	600 ppm

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects. .

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

Skin and body protection

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.
Wear resistant gloves (consult your safety equipment supplier).
Discard gloves that show tears, pinholes, or signs of wear.

Respiratory protection

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable)

or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Odour	pungent
Boiling point/boiling range	212.9 °F / 100.5 °C @ 101.32 kPa
Flash point	55.0 °F / 12.8 °C Seta closed cup
Lower explosion limit/Upper explosion limit	1.1 %(V) / 12.5 %(V)
Vapour pressure	5.132 kPa @ 77 °F / 25 °C
Relative vapour density	(>)1 AIR=1
Density	1.059 g/cm3 @ 77 °F / 25 °C
	8.8 lb/gal @ 77.00 °F / 25.00 °C
Water solubility	negligible

10. STABILITY AND REACTIVITY

Stability
Stable.

Conditions to avoid
Heat, flames and sparks., Exposure to air., Exposure to sunlight., Exposure to moisture.

Incompatible products
Acids, aluminum, aluminum chloride, Amines, Bases, Copper, Copper alloys, halogens, iron chloride, metal salts, nitrates, reducing agents, strong alkalis, Strong oxidizing agents, UV light., Peroxides

Hazardous decomposition products
carbon dioxide and carbon monoxide, Hydrocarbons, toxic fumes

Hazardous reactions
Product can undergo hazardous polymerization., Avoid exposure to excessive heat, peroxides and polymerization catalysts.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of : Inhalation

exposure		Skin absorption Skin contact Eye Contact Ingestion

Product

Acute oral toxicity	:	No data available
Acute inhalation toxicity	:	No data available
Acute dermal toxicity	:	No data available
Skin corrosion/irritation	:	No data available
Serious eye damage/eye irritation	:	No data available
Respiratory or skin sensitisation	:	No data available
Target Organ Systemic Toxicant - Repeated exposure	:	Target Organs: Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:, effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage, nasal damage, kidney damage, liver damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:, mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects
Aspiration toxicity	:	The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Components:

METHYLMETHACRYLATE:

Acute oral toxicity	:	LD 50 Rat: 7,800 mg/kg
Acute inhalation toxicity	:	LC 50 Rat: 3,750 mg/l Exposure time: 8 h LC 50 Rat: 29.8 mg/l Exposure time: 4 h

Test atmosphere: vapour

Acute dermal toxicity	:	LD 50 Rabbit: > 5,000 mg/kg
Respiratory or skin sensitisation	:	Classification: May cause sensitization by skin contact.
STOT - single exposure	:	Assessment: May cause respiratory irritation.

STYRENE:

Acute oral toxicity	:	LD 50 Rat: 2,650 mg/kg
Acute inhalation toxicity	:	LC 50 Rat: 2800 ppm Exposure time: 4 h
Acute dermal toxicity	:	LD 50 Rat: > 2,000 mg/kg Method: OECD Test Guideline 402 The substance or mixture has no acute dermal toxicity
STOT - single exposure	:	Assessment: May cause respiratory irritation.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Product:

No data available

Components:

METHYLMETHACRYLATE:

Toxicity to fish	:	LC 50 (Fathead minnow (Pimephales promelas)): 130 mg/l Exposure time: 96 h Method: Static LC 50 (Oncorhynchus mykiss (rainbow trout)): > 79 mg/l Exposure time: 96 h Test Method: flow-through test
Toxicity to daphnia and other aquatic invertebrates	:	EC 50 (Water flea (Daphnia magna)): 69 mg/l Exposure time: 48 h Test Method: flow-through test

Toxicity to algae	:	EC 50 (Pseudokirchneriella subcapitata (Selenastrum capricornutum)): > 110 mg/l Exposure time: 72 h Test Method: static test

STYRENE:

Toxicity to fish	:	LC 50 (Pimephales promelas (fathead minnow)): 4.02 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC 50 (Water flea (Daphnia magna)): 4.7 mg/l Exposure time: 48 h
Toxicity to algae	:	EC 50 (Pseudokirchneriella subcapitata (green algae)): > 4.9 mg/l Exposure time: 72 h
Toxicity to bacteria	:	EC 50 (activated sludge): ca. 500 mg/l Exposure time: 0.5 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 1.01 mg/l Exposure time: 21 d Species: Water flea (Daphnia magna)

Persistence and degradability

Product:

No data available

Components:

METHYLMETHACRYLATE:

Biodegradability	:	Biodegradation: 94.3 % Exposure time: 14 d Readily biodegradable

STYRENE:

Biodegradability	:	Readily biodegradable

Bioaccumulative potential

Product:

No data available

Components:

METHYLMETHACRYLATE:

Partition coefficient: n-octanol/water	:	log Pow: 1.38

STYRENE:

Partition coefficient: n-octanol/water	:	log Pow: 2.95

Mobility in soil

Product:

No data available

Components:

METHYLMETHACRYLATE:

Surface tension	:	28 mN/m

STYRENE:

Surface tension	:	32.3 mN/m

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
U.S. DOT - ROAD					
UN 1866	Resin solution	3		II	
U.S. DOT - RAIL					
UN 1866	Resin solution	3		II	

U.S. DOT - INLAND WATERWAYS

UN	1866	Resin solution	3	II

TRANSPORT CANADA - ROAD

UN	1866	RESIN SOLUTION	3	II

TRANSPORT CANADA - RAIL

UN	1866	RESIN SOLUTION	3	II

TRANSPORT CANADA - INLAND WATERWAYS

UN	1866	RESIN SOLUTION	3	II

INTERNATIONAL MARITIME DANGEROUS GOODS

UN	1866	RESIN SOLUTION	3	II

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

UN	1866	Resin solution	3	II

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

UN	1866	Resin solution	3	II

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

UN	1866	RESINA, SOLUCIONES DE	3	II

***ORM = ORM-D, CBL = COMBUSTIBLE LIQUID**

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

WARNING! This product contains a chemical known to the State of California to cause cancer.	BENZENE

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	BENZENE TOLUENE

SARA Hazard Classification
SARA 311/312 Classification
Reactivity Hazard

Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 Component(s)

METHYLMETHACRYLATE	45.04 %
STYRENE	11.99 %

Notification status

US. Toxic Substances Control Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	n (Negative listing)
Japan. Kashin-Hou Law List	y (positive listing)
Korea. Toxic Chemical Control Law (TCCL) List	n (Negative listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302)	2220 lbs

Reportable quantity-Components

METHYLMETHACRYLATE	80-62-6	1000 lbs

	HMIS	NFPA
Health	2*	2
Flammability	3	3
Physical hazards	2	
Instability		2
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :
ACGIH : American Conference of Industrial Hygienists

BEI : Biological Exposure Index
CAS : Chemical Abstracts Service (Division of the American Chemical Society).
CMR : Carcinogenic, Mutagenic or Toxic for Reproduction
FG : Food grade
GHS : Globally Harmonized System of Classification and Labeling of Chemicals.
H-statement : Hazard Statement
IATA : International Air Transport Association.
IATA-DGR : Dangerous Goods Regulation by the “International Air Transport Association” (IATA).
ICAO : International Civil Aviation Organization
ICAO-TI (ICAO) : Technical Instructions by the “International Civil Aviation Organization”
IMDG : International Maritime Code for Dangerous Goods
ISO : International Organization for Standardization
logPow : octanol-water partition coefficient
LCxx : Lethal Concentration, for xx percent of test population
LDxx : Lethal Dose, for xx percent of test population.
ICxx : Inhibitory Concentration for xx of a substance
Ecxx : Effective Concentration of xx
N.O.S.: Not Otherwise Specified
OECD : Organization for Economic Co-operation and Development
OEL : Occupational Exposure Limit
P-Statement : Precautionary Statement
PBT : Persistent , Bioaccumulative and Toxic
PPE : Personal Protective Equipment
STEL : Short-term exposure limit
STOT : Specific Target Organ Toxicity
TLV : Threshold Limit Value
TWA : Time-weighted average
vPvB : Very Persistent and Very Bioaccumulative
WEL : Workplace Exposure Level

CERCLA : Comprehensive Environmental Response, Compensation, and Liability Act
DOT : Department of Transportation
FIFRA : Federal Insecticide, Fungicide, and Rodenticide Act
HMIRC : Hazardous Materials Information Review Commission
HMIS : Hazardous Materials Identification System
NFPA : National Fire Protection Association
NIOSH : National Institute for Occupational Safety and Health
OSHA : Occupational Safety and Health Administration
PMRA : Health Canada Pest Management Regulatory Agency
RTK : Right to Know
WHMIS : Workplace Hazardous Materials Information System