Safety Data Sheet

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SECTION 1: Identification

1.1. Product identifier
3M™ Solar Encapsulant Film EVA9120B

Product Identification Numbers
XI-0038-5243-5

1.2. Recommended use and restrictions on use

Recommended use
Film

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Renewable Energy Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification
Skin Sensitizer: Category 1.
Carcinogenicity: Category 2.

2.2. Label elements
Signal word
Warning

Symbols
Exclamation mark | Health Hazard |

Pictograms

Hazard Statements
May cause an allergic skin reaction.
Suspected of causing cancer.

Precautionary Statements

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Wear protective gloves.
Contaminated work clothing must not be allowed out of the workplace.

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

Storage:
Store locked up.

Disposal:
Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

2.3. Hazards not otherwise classified
May cause thermal burns.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
ETHYLENE-VINYL ACETATE POLYMER	24937-78-8	> 90
OCTABENZONE	1843-05-6	0.1 - 1 Trade Secret *
VINYL ACETATE	108-05-4	< 0.5 Trade Secret *
TRIMETHYLOLPROPANE TRIACRYLATE	15625-89-5	0.01 - 1 Trade Secret *

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:
Immediately flush skin with large amounts of cold water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE

MOLTEN MATERIAL. Cover affected area with a clean dressing. Get immediate medical attention.

Eye Contact:
Immediately flush eyes with large amounts of water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Get immediate medical attention.

If Swallowed:
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1. Information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

5.3. Special protective actions for fire-fighters
No special protective actions for fire-fighters are anticipated.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Dispose of collected material as soon as possible.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid skin contact with hot material. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Keep away from reactive metals (eg. Aluminum, zinc etc.) to avoid the formation of hydrogen gas that could create an explosion hazard. Use personal protective equipment (gloves, respirators, etc.) as required.

7.2. Conditions for safe storage including any incompatibilities
Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Store away from heat. Store away from acids. Store away from strong bases. Store away from oxidizing agents.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
VINYL ACETATE	108-05-4	ACGIH	TWA:10 ppm;STEL:15 ppm	A3: Confirmed animal carcin.
VINYL ACETATE	108-05-4	CMRG	TWA:5 ppm	
TRIMETHYLOLPROPANE TRIACRYLATE	15625-89-5	AIHA	TWA:1 mg/m3	Skin Notation

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
OSHA : United States Department of Labor - Occupational Safety and Health Administration
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment. Provide appropriate local exhaust when product is heated.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Indirect Vented Goggles

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended: Polymer laminate

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - polymer laminate

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors

For questions about suitability for a specific application, consult with your respirator manufacturer.

Thermal hazards

Wear heat insulating gloves when handling hot material to prevent thermal burns.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

General Physical Form:	Solid
Specific Physical Form:	Film
Odor, Color, Grade:	Translucent film with mild odor
Odor threshold	*No Data Available*
pH	*Not Applicable*
Melting point	*No Data Available*
Boiling Point	*No Data Available*
Flash Point	500 ºF [*Test Method:* Closed Cup]
Evaporation rate	*Not Applicable*
Flammability (solid, gas)	Not Classified
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	*Not Applicable*
Vapor Density	*Not Applicable*
Density	0.93 - 0.97 g/ml
Specific Gravity	0.93 - 0.97 [*Ref Std:* WATER=1]
Solubility in Water	Negligible
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*No Data Available*
Decomposition temperature	*No Data Available*
Viscosity	*No Data Available*
Average particle size	*No Data Available*
Bulk density	*No Data Available*
Hazardous Air Pollutants	*No Data Available*
Molecular weight	*No Data Available*
Volatile Organic Compounds	*No Data Available*
Percent volatile	*No Data Available*
Softening point	*No Data Available*
VOC Less H2O & Exempt Solvents	*No Data Available*

SECTION 10: Stability and reactivity

10.1. Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Sparks and/or flames
Light

10.5. Incompatible materials

Strong acids
Strong bases
Strong oxidizing agents
Reactive metals

No Data Available

10.6. Hazardous decomposition products

Substance	Condition
Carbon monoxide	Oxidation, heat or reaction
Carbon dioxide	Oxidation, heat or reaction

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
Vapors from heated material may cause irritation of the respiratory system. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Skin Contact:
During heating:
Thermal Burns: Signs/symptoms may include intense pain, redness and swelling, and tissue destruction.

Contact with the skin during product use is not expected to result in significant irritation. Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye Contact:
During heating:
Thermal Burns: Signs/symptoms may include severe pain, redness and swelling, and tissue destruction.

Contact with the eyes during product use is not expected to result in significant irritation.

Ingestion:
Physical Blockage: Signs/symptoms may include cramping, abdominal pain, and constipation.

Additional Health Effects:

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

Ingredient	CAS No.	Class Description	Regulation
VINYL ACETATE	108-05-4	Grp. 2B: Possible human carc.	International Agency for Research on Cancer

Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
ETHYLENE-VINYL ACETATE POLYMER	Dermal		LD50 estimated to be > 5,000 mg/kg
ETHYLENE-VINYL ACETATE POLYMER	Ingestion	Rat	LD50 > 1,000 mg/kg
OCTABENZONE	Dermal	Rabbit	LD50 > 10,000 mg/kg
OCTABENZONE	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 20 mg/l
OCTABENZONE	Ingestion	Rat	LD50 > 10,000 mg/kg
VINYL ACETATE	Dermal	Rabbit	LD50 2,320 mg/kg
VINYL ACETATE	Inhalation-Vapor (4 hours)	Rat	LC50 11.3 mg/l
VINYL ACETATE	Ingestion	Rat	LD50 2,920 mg/kg
TRIMETHYLOLPROPANE TRIACRYLATE	Dermal	Rabbit	LD50 5,170 mg/kg
TRIMETHYLOLPROPANE TRIACRYLATE	Ingestion	Rat	LD50 > 5,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
ETHYLENE-VINYL ACETATE POLYMER	Professional judgement	No significant irritation
OCTABENZONE	Rabbit	No significant irritation
VINYL ACETATE	Rabbit	Minimal irritation
TRIMETHYLOLPROPANE TRIACRYLATE	Rabbit	Mild irritant

Serious Eye Damage/Irritation

Name	Species	Value
ETHYLENE-VINYL ACETATE POLYMER	Professional judgement	No significant irritation
OCTABENZONE	Rabbit	No significant irritation
VINYL ACETATE	Rabbit	Mild irritant
TRIMETHYLOLPROPANE TRIACRYLATE	Rabbit	Corrosive

Skin Sensitization

Name	Species	Value
OCTABENZONE	Guinea pig	Sensitizing
VINYL ACETATE	Guinea pig	Some positive data exist, but the data are not sufficient for classification
TRIMETHYLOLPROPANE TRIACRYLATE	Guinea pig	Sensitizing

Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
OCTABENZONE	In Vitro	Not mutagenic
VINYL ACETATE	In Vitro	Some positive data exist, but the data are not sufficient for classification
VINYL ACETATE	In vivo	Some positive data exist, but the data are not sufficient for classification
TRIMETHYLOLPROPANE TRIACRYLATE	In vivo	Not mutagenic

TRIMETHYLOLPROPANE TRIACRYLATE	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
VINYL ACETATE	Ingestion	Multiple animal species	Carcinogenic
VINYL ACETATE	Inhalation	Rat	Carcinogenic
TRIMETHYLOLPROPANE TRIACRYLATE	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
OCTABENZONE	Ingestion	Not toxic to female reproduction	Rat	NOAEL 614 mg/kg/day	4 generation
OCTABENZONE	Ingestion	Not toxic to male reproduction	Rat	NOAEL 524 mg/kg/day	4 generation
OCTABENZONE	Ingestion	Not toxic to development	Rat	NOAEL 614 mg/kg/day	4 generation
VINYL ACETATE	Inhalation	Not toxic to female reproduction	Mouse	NOAEL 3.5 mg/l	3 months
VINYL ACETATE	Inhalation	Not toxic to male reproduction	Mouse	NOAEL 3.5 mg/l	3 months
VINYL ACETATE	Ingestion	Some positive female reproductive data exist, but the data are not sufficient for classification	Rat	NOAEL 140 mg/kg/day	2 generation
VINYL ACETATE	Ingestion	Some positive male reproductive data exist, but the data are not sufficient for classification	Rat	NOAEL 140 mg/kg/day	2 generation
VINYL ACETATE	Ingestion	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 700 mg/kg/day	2 generation
VINYL ACETATE	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 0.7 mg/l	during organogenesis

Lactation

Name	Route	Species	Value
OCTABENZONE	Ingestion	Rat	Does not cause effects on or via lactation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
VINYL ACETATE	Inhalation	respiratory irritation	May cause respiratory irritation	Human and animal	NOAEL Not available	
VINYL ACETATE	Inhalation	central nervous system depression	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
ETHYLENE-VINYL ACETATE POLYMER	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 4,000 mg/kg/day	90 days
OCTABENZONE	Ingestion	kidney and/or	Some positive data exist, but the	Rat	LOAEL 80	90 days

		bladder	data are not sufficient for classification		mg/kg/day	
OCTABENZONE	Ingestion	endocrine system | hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 2,000 mg/kg/day	90 days
OCTABENZONE	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Dog	NOAEL 300 mg/kg/day	2 years
VINYL ACETATE	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL 0.2 mg/l	104 weeks
VINYL ACETATE	Inhalation	heart | hematopoietic system | liver | kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 2.1 mg/l	104 weeks
VINYL ACETATE	Inhalation	endocrine system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.07 mg/l	120 days
VINYL ACETATE	Inhalation	immune system	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL 3.5 mg/l	3 months
VINYL ACETATE	Inhalation	nervous system	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL 2.1 mg/l	104 weeks
VINYL ACETATE	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 684 mg/kg/day	3 months
VINYL ACETATE	Ingestion	hematopoietic system | nervous system | kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 235 mg/kg/day	104 weeks
VINYL ACETATE	Ingestion	immune system | respiratory system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 950 mg/kg/day	3 months
VINYL ACETATE	Ingestion	heart	All data are negative	Rat	NOAEL 235 mg/kg/day	104 weeks
TRIMETHYLOLPROPANE TRIACRYLATE	Dermal	immune system	May cause damage to organs though prolonged or repeated exposure	Mouse	NOAEL 50 mg/kg/day	16 days
TRIMETHYLOLPROPANE TRIACRYLATE	Dermal	heart | hematopoietic system | kidney and/or bladder | respiratory system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 12 mg/kg/day	28 weeks

Aspiration Hazard
For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

Ecotoxicological information

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations

13.1. Disposal methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. As a disposal alternative, utilize an acceptable permitted waste disposal facility. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

EPA Hazardous Waste Number (RCRA): Not regulated

SECTION 14: Transport Information

For Transport Information, please visit **http://3M.com/Transportinfo** or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

15.1. US Federal Regulations
Contact 3M for more information.

311/312 Hazard Categories:

Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - Yes

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

Ingredient	C.A.S. No	% by Wt
VINYL ACETATE	108-05-4	< 0.5

15.2. State Regulations
Contact 3M for more information.

15.3. Chemical Inventories
The components of this product are in compliance with the new substance notification requirements of CEPA.

The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information.

This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory listing requirements.

Contact 3M for more information.

15.4. International Regulations
Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification
Health: 2 **Flammability:** 1 **Instability:** 1 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

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