Safety Data Sheet

Document Group:	10-2507-1	**Version Number:**	82.00
Issue Date:	06/12/23	**Supercedes Date:**	03/10/23

SECTION 1: Identification

1.1. Product identifier

3M™ Scotch-Weld™ Structural Adhesive Film AF 163-2

Product Identification Numbers

62-0080-5305-0, 62-0080-5306-8, 62-0187-0120-1, 62-0187-0155-7, 62-0187-0455-1, 62-0187-0835-4, 62-0187-1005-3, 62-0187-1105-1, 62-0187-1500-3, 62-0187-1600-1, 62-0187-1685-2, 62-0187-1701-7, 62-0187-1736-3, 62-0187-1750-4, 62-0187-2125-8, 62-0187-2405-4, 62-0187-2505-1, 62-0187-2507-7, 62-0187-2850-1, 62-0187-2920-2, 62-0187-3905-2, 62-0187-4205-6, 62-0187-4505-9, 62-0187-4506-7, 62-0187-4805-3, 62-0187-5308-7, 62-0187-5309-5, 62-0187-5310-3, 62-0187-5345-9, 62-0187-5349-1, 62-0187-6005-8, 62-0189-5305-9, 62-0189-5306-7, 62-0197-0135-8, 62-0197-0305-7, 62-0197-2205-7, 62-0197-2895-5, 62-0197-3907-7, 62-0197-5305-2, 62-0197-5309-4, 62-2623-4805-5, 62-2623-4825-3, 62-2623-6009-2, 62-3042-5306-5, 62-3042-6003-7, 62-3042-6009-4, 62-3064-0305-6, 62-3064-0805-5, 62-3064-3905-0, 62-3064-4506-5, 62-3064-4805-1, 62-3064-5305-1, 62-3064-5306-9, 62-3064-5309-3, 62-3077-6005-8, 62-3087-3905-1, 62-3087-4356-6, 62-3087-4505-8, 62-3087-5305-2, 62-3087-5309-4, 62-3087-6009-9, 62-3137-5305-5, 62-3137-5306-3, 62-3146-0155-0, 62-3146-0355-6, 62-3146-1205-2, 62-3146-5306-4, 62-3146-5307-2, 62-3146-5309-8, 62-3147-5306-2, 62-3147-5309-6, 62-3162-0305-8, 62-3162-0555-8, 62-3162-5306-1, 62-3162-5309-5, 62-3189-2205-1, 62-3189-4505-2, 62-3189-5301-5, 62-3189-5302-3, 62-3189-5309-8, 62-3189-6005-1, 62-3189-6255-2, 62-3190-0305-9, 62-3190-1005-4, 62-3190-1205-0, 62-3190-1755-4, 62-3190-2405-5, 62-3190-2805-6, 62-3190-3155-5, 62-3190-3906-1, 62-3190-4505-0, 62-3190-5302-1, 62-3190-5303-9, 62-3190-5309-6, 62-3192-0455-8, 62-3192-3905-9, 62-3192-5300-1, 62-3192-5305-0, 62-3192-5309-2, 87-2500-0336-2, 87-2500-0390-9, 87-2500-0391-7, 87-2500-0393-3, 87-3300-0007-3, 87-3300-0008-1, 87-3300-0013-1, 87-3300-0014-9, 87-3300-0015-6, 87-3300-0019-8, 87-3300-0020-6, 87-3300-0021-4, 87-3300-0028-9, 87-3300-0029-7, 87-3300-0042-0, 87-3300-0043-8, 87-3300-0113-9, 87-3300-0501-5, 87-3300-0502-3, 87-3300-0503-1, 87-3300-0504-9, 87-3300-0505-6, 87-3300-0506-4, 87-3300-0507-2, 87-3300-0508-0, 87-3300-0526-2, 87-3300-0527-0, 87-3300-0530-4, 87-3300-0531-2, 87-3300-0532-0, 87-3300-0533-8, 87-3300-0543-7, 87-3300-0544-5, 87-3300-0545-2, 87-3300-0546-0, 87-3300-0547-8, 87-3300-0548-6, 87-3300-0549-4, 87-3300-0550-2, 87-3300-0551-0, 87-3300-0552-8, 87-3300-0562-7, 87-3300-0563-5, 87-3300-0564-3, 87-3300-0565-0, 87-3300-0566-8, 87-3300-0567-6, 87-3300-0572-6, 87-3300-0573-4, 87-3300-0574-2, 87-3300-0575-9, 87-3300-0576-7, 87-3300-0577-5, 87-3300-0579-1, 87-3300-0580-9, 87-3300-0581-7, 87-3300-0582-5, 87-3300-0583-3, 87-3300-0584-1, 87-3300-0614-6, 87-3300-0615-3
7010292696, 7010365902, 7010330017, 7000046318, 7010309710, 7010365904, 7000000789, 7000000790, 7010301015, 7010365906, 7000046319, 7010309711, 7010365908, 7010330020, 7010295291, 7000121192, 7000046320, 7000046370, 7100005489, 7000046406, 7000046409, 7010295305, 7100079639, 7100058843, 7000046410, 7000046415, 7000046416, 7000046417, 7000121248, 7000000837, 7100007551, 7100094932, 7010301046, 7000046424, 7000000840, 7100112021, 7000046425, 7000046426, 7000046429, 7000046430, 7100070565, 7000046431, 7100139407, 7100054781, 7000046433, 7010329695, 7010291341, 7010366117, 7010274880, 7000046434, 7000046435, 7000046436, 7010365907, 7100183189, 7010399426, 7010297842, 7000058939, 7010321077, 7010352084, 7010399453, 7010399456, 7010399454, 7010321076, 7010352086, 7100067099, 7100067098, 7100067113, 7100067114, 7100067112, 7100067111, 7100067110, 7100066704, 7100067289, 7100067300, 7100067303, 7100067304, 7100067281, 7100067333, 7100067335, 7100067336, 7100067337, 7100067338, 7100067339, 7100067405, 7100067406, 7100067407, 7100067280, 7100067408, 7100067133, 7100067422, 7100067131, 7100067132, 7100067130, 7100067423, 7100067552, 7100067428, 7100067554, 7100067553, 7100067559, 7100067556, 7100067557, 7100067598, 7100067653, 7100067654, 7100067205, 7100067137, 7100067504, 7100067427,

7010411505

1.2. Recommended use and restrictions on use

Recommended use
Structural Film Adhesive., Structural Adhesive Film for Bonding Applications

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Automotive and Aerospace Solutions 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
Not classified as hazardous according to OSHA Hazard Communication Standard, 29 CFR 1910.1200.

2.2. Label elements
Signal word
Not applicable.

Symbols
Not applicable.

Pictograms
Not applicable.

60% of the mixture consists of ingredients of unknown acute oral toxicity.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
EPOXY RESIN REACTION PRODUCT	None	45 - 65 Trade Secret *
Bisphenol A	1675-54-3	10 - 20 Trade Secret *
Epoxy Resin C	25068-38-6	5 - 20 Trade Secret *
Dicyandiamide	461-58-5	< 5
1,1'-(4-METHYL-M-PHENYLENE)BIS(3,3-DIMETHYLUREA)	17526-94-2	< 1.5
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	2530-83-8	< 1
Adipic Dihydrazide	1071-93-8	< 1
PHENOL, 2,2',6-TRIBROMO-4,4'-ISOPROPYLIDENEDI-	6386-73-8	< 1
Dye	Trade Secret*	< 0.2

*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:
No need for first aid is anticipated. If symptoms develop, remove the affected person to fresh air. Get medical attention.

Skin Contact:
If exposed, wash with soap and water. If signs/symptoms develop, get medical attention.

Eye Contact:
If exposed, flush eyes with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms develop, get medical attention.

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

4.2. Most important symptoms and effects, both acute and delayed
No critical symptoms or effects. 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.

Hazardous Decomposition or By-Products

Substance	Condition
Aldehydes	During Combustion
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Chloride	During Combustion
Hydrogen Cyanide	During Combustion
Ammonia	During Combustion
Oxides of Nitrogen	During Combustion

5.3. Special protective actions for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Ventilate the area with fresh air. Observe precautions from other sections.

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. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
For industrial/occupational use only. Not for consumer sale or use. Avoid release to the environment.

7.2. Conditions for safe storage including any incompatibilities
Store away from heat. Store away from amines.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
No occupational exposure limit values exist for any of the components listed in Section 3 of this SDS.

8.2. Exposure controls

8.2.1. Engineering controls
Provide ventilated enclosure for curing. Curing enclosures must be exhausted to outdoors or to a suitable emission control device.

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:
Safety Glasses with side shields

Skin/hand protection
No protective gloves required.

Respiratory protection
None required.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Solid
Color	Red
Specific Physical Form:	Film
Odor	Odorless
Odor threshold	*No Data Available*
pH	*Not Applicable*
Melting point	*No Data Available*
Boiling Point	*Not Applicable*
Flash Point	No flash point
Evaporation rate	*Not Applicable*
Flammability (solid, gas)	Not Classified
Flammable Limits(LEL)	*Not Applicable*
Flammable Limits(UEL)	*Not Applicable*
Vapor Pressure	*Not Applicable*

Vapor Density	*Not Applicable*
Density	1.27 g/ml
Specific Gravity	1.27 [*Ref Std:*WATER=1]
Solubility in Water	Nil
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*Not Applicable*
Autoignition temperature	*Not Applicable*
Decomposition temperature	*No Data Available*
Viscosity	*Not Applicable*
Molecular weight	*No Data Available*
Percent volatile	Negligible

SECTION 10: Stability and reactivity

10.1. Reactivity
This material is considered to be non reactive under normal use conditions.

10.2. Chemical stability
Stable.

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

10.4. Conditions to avoid
Heat

10.5. Incompatible materials
Amines

10.6. Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

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:
No known health effects.

Skin Contact:
Contact with the skin during product use is not expected to result in significant irritation.

Eye Contact:
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.

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
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Bisphenol A	Dermal	Rat	LD50 > 1,600 mg/kg
Bisphenol A	Ingestion	Rat	LD50 > 1,000 mg/kg
Epoxy Resin C	Dermal	Rat	LD50 > 1,600 mg/kg
Epoxy Resin C	Ingestion	Rat	LD50 > 1,000 mg/kg
Dicyandiamide	Dermal	Rabbit	LD50 > 10,000 mg/kg
Dicyandiamide	Ingestion	Rat	LD50 > 30,000 mg/kg
1,1'-(4-METHYL-M-PHENYLENE)BIS(3,3-DIMETHYLUREA)	Dermal	Rat	LD50 > 2,000 mg/kg
1,1'-(4-METHYL-M-PHENYLENE)BIS(3,3-DIMETHYLUREA)	Ingestion	Rat	LD50 > 2,000 mg/kg
Adipic Dihydrazide	Ingestion	Mouse	LD50 > 5,000 mg/kg
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	Dermal	Rabbit	LD50 4,000 mg/kg
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.3 mg/l
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	Ingestion	Rat	LD50 7,010 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Overall product	Multiple animal species	No significant irritation
Bisphenol A	Rabbit	Mild irritant
Epoxy Resin C	Rabbit	Mild irritant
Dicyandiamide	Human and animal	Minimal irritation
1,1'-(4-METHYL-M-PHENYLENE)BIS(3,3-DIMETHYLUREA)	Rabbit	No significant irritation
Adipic Dihydrazide	Rabbit	No significant irritation
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	Rabbit	Mild irritant

Serious Eye Damage/Irritation

Name	Species	Value
Bisphenol A	Rabbit	Moderate irritant
Epoxy Resin C	Rabbit	Moderate irritant
Dicyandiamide	Professional judgement	Mild irritant
1,1'-(4-METHYL-M-PHENYLENE)BIS(3,3-DIMETHYLUREA)	Rabbit	No significant irritation
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	Rabbit	Corrosive

Skin Sensitization

Name	Species	Value
Overall product	Guinea	Not classified

	pig	
Bisphenol A	Human and animal	Sensitizing
Epoxy Resin C	Human and animal	Sensitizing
Dicyandiamide	Guinea pig	Not classified
Adipic Dihydrazide	Guinea pig	Sensitizing
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	Guinea pig	Not classified

Respiratory Sensitization

Name	Species	Value
Bisphenol A	Human	Not classified
Epoxy Resin C	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
Bisphenol A	In vivo	Not mutagenic
Bisphenol A	In Vitro	Some positive data exist, but the data are not sufficient for classification
Epoxy Resin C	In vivo	Not mutagenic
Epoxy Resin C	In Vitro	Some positive data exist, but the data are not sufficient for classification
Dicyandiamide	In Vitro	Not mutagenic
Adipic Dihydrazide	In vivo	Not mutagenic
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	In vivo	Not mutagenic
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Bisphenol A	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Epoxy Resin C	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Dicyandiamide	Ingestion	Rat	Not carcinogenic
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	Dermal	Mouse	Not carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
Bisphenol A	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Bisphenol A	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Bisphenol A	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
Bisphenol A	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin C	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin C	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin C	Dermal	Not classified for development	Rabbit	NOAEL 300	during

				mg/kg/day	organogenesis
Epoxy Resin C	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
Dicyandiamide	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	premating & during gestation
Dicyandiamide	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	44 days
Dicyandiamide	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	premating & during gestation
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	1 generation
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	1 generation
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	Ingestion	Not classified for development	Rat	NOAEL 3,000 mg/kg/day	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure
For the component/components, either no data are currently available or the data are not sufficient for classification.

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Bisphenol A	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Bisphenol A	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Bisphenol A	Ingestion	auditory system | heart | endocrine system | hematopoietic system | liver | eyes | kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Epoxy Resin C	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Epoxy Resin C	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Epoxy Resin C	Ingestion	auditory system | heart | endocrine system | hematopoietic system | liver | eyes | kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Dicyandiamide	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 6,822 mg/kg/day	13 weeks
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER	Ingestion	heart | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | liver | immune system | nervous system | kidney and/or bladder | respiratory	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days

		system				

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.

Dispose of completely cured (or polymerized) material in a permitted industrial waste facility. As a disposal alternative, incinerate uncured product in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include halogen acid (HCl/HF/HBr). Facility must be capable of handling halogenated materials. 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.

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.

EPCRA 311/312 Hazard Classifications:

Physical Hazards
Not applicable

Health Hazards
Not applicable

15.2. State Regulations
Contact 3M for more information.

15.3. Chemical Inventories

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: 0 **Flammability:** 1 **Instability:** 0 **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.

Document Group:	10-2507-1	**Version Number:**	82.00
Issue Date:	06/12/23	**Supercedes Date:**	03/10/23

DISCLAIMER: The information in this Safety Data Sheet (SDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

3M provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, 3M makes no representations as to its completeness or accuracy. In addition, information obtained from a database may not be as current as the information in the SDS available directly from 3M.

3M USA SDSs are available at www.3M.com