



## Safety Data Sheet

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### 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, 7000046319, 7010365906, 7010309711, 7010365908, 7010330020, 7010295291, 7000121192, 7000046320, 7000046370, 7100005489, 7000046406, 7000046409, 7010295305, 7100079639, 7000046410, 7100058843, 7000046415, 7000046416, 7000046417, 7000121248, 7000000837, 7100007551, 7100094932, 7010301046, 7000046424, 7000000840, 7100112021, 7000046426, 7000046425, 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.

**SECTION 3: Composition/information on ingredients**

Ingredient	C.A.S. No.	% by Wt
Polymeric Epoxy Reaction Product (M.W. >700)	Trade Secret*	40 - 70
Epoxy Resin	1675-54-3	10 - 30 Trade Secret *
Dicyandiamide	461-58-5	3 - 7
Epoxy Resin	25068-38-6	3 - 7 Trade Secret *
N,N'-(Methyl-1,3-Phenylene)bis(N,N'-Dimethylurea)	17526-94-2	0.5 - 1.5
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	0.1 - 1
Adipic Dihydrazide	1071-93-8	< 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:**

Wash with soap and water. If signs/symptoms develop, get medical attention.

**Eye Contact:**

Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, 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**

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**

Aldehydes  
Carbon monoxide  
Carbon dioxide  
Hydrogen Chloride  
Hydrogen Cyanide  
Ammonia  
Oxides of Nitrogen

**Condition**

During Combustion  
During Combustion  
During Combustion  
During Combustion  
During Combustion  
During Combustion  
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**

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. 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 breathing dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. 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

Curing enclosures must be exhausted to outdoors or to a suitable emission control device. 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.

#### 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

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

When only incidental contact is anticipated, alternative glove material(s) may be used. If contact with the glove does occur, remove immediately and replace with a set of new gloves. For incidental contact, gloves made of the following material(s) may be used: Nitrile Rubber

##### Respiratory protection

None required.

## 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:	Red, odorless
Odor threshold	<i>No Data Available</i>

pH	<i>Not Applicable</i>
Melting point	<i>No Data Available</i>
Boiling Point	<i>Not Applicable</i>
Flash Point	No flash point
Evaporation rate	<i>Not Applicable</i>
Flammability (solid, gas)	Not Classified
Flammable Limits(LEL)	<i>Not Applicable</i>
Flammable Limits(UEL)	<i>Not Applicable</i>
Vapor Pressure	<i>Not Applicable</i>
Vapor Density	<i>Not Applicable</i>
Density	1.27 g/ml
Specific Gravity	1.27 [Ref Std:WATER=1]
Solubility in Water	Nil
Solubility- non-water	<i>No Data Available</i>
Partition coefficient: n-octanol/ water	<i>Not Applicable</i>
Autoignition temperature	<i>Not Applicable</i>
Decomposition temperature	<i>No Data Available</i>
Viscosity	<i>Not Applicable</i>
Molecular weight	<i>No Data Available</i>
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

<u>Substance</u>	<u>Condition</u>
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 health effects are expected.

#### Skin Contact:

Prolonged or repeated exposure may cause:

Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness.

#### 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
Epoxy Resin	Dermal	Rat	LD50 > 1,600 mg/kg
Epoxy Resin	Ingestion	Rat	LD50 > 1,000 mg/kg
Epoxy Resin	Dermal	Rat	LD50 > 1,600 mg/kg
Epoxy Resin	Ingestion	Rat	LD50 > 1,000 mg/kg
Dicyandiamide	Dermal	Rabbit	LD50 > 10,000 mg/kg
Dicyandiamide	Ingestion	Rat	LD50 > 30,000 mg/kg
N,N'-(Methyl-1,3-Phenylene)bis(N,N'-Dimethylurea)	Dermal	Rat	LD50 > 2,000 mg/kg
N,N'-(Methyl-1,3-Phenylene)bis(N,N'-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	Minimal irritation
Epoxy Resin	Rabbit	Mild irritant
Epoxy Resin	Rabbit	Mild irritant
Dicyandiamide	Human and animal	Minimal irritation
N,N'-(Methyl-1,3-Phenylene)bis(N,N'-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
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Epoxy Resin	Rabbit	Moderate irritant
Epoxy Resin	Rabbit	Moderate irritant
Dicyandiamide	Professional judgement	Mild irritant
N,N'-(Methyl-1,3-Phenylene)bis(N,N'-Dimethylurea)	Rabbit	No significant irritation
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Rabbit	Corrosive

**Skin Sensitization**

Name	Species	Value
Overall product	Guinea pig	Not classified
Epoxy Resin	Human and animal	Sensitizing
Epoxy Resin	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
Epoxy Resin	Human	Not classified
Epoxy Resin	Human	Not classified

**Germ Cell Mutagenicity**

Name	Route	Value
Epoxy Resin	In vivo	Not mutagenic
Epoxy Resin	In Vitro	Some positive data exist, but the data are not sufficient for classification
Epoxy Resin	In vivo	Not mutagenic
Epoxy Resin	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
Epoxy Resin	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Epoxy Resin	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
Epoxy Resin	Ingestion	Not classified for female reproduction	Rat	NOAEL 750	2 generation

Epoxy Resin	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
Epoxy Resin	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
Epoxy Resin	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	prematings & 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	prematings & 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
Epoxy Resin	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Epoxy Resin	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Epoxy Resin	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	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Epoxy Resin	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Epoxy Resin	Ingestion	auditory system   heart   endocrine system   hematopoietic system   liver   eyes   kidney and/or	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days



Dicyandiamide	Ingestion	bladder 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 system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days

**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.

**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.

**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**

The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

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:** 1 **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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