



Safety Data Sheet

Copyright, 2015, 3M Company.

All rights reserved. Copying and/or downloading of this information for the purpose of properly utilizing 3M products is allowed provided that: (1) the information is copied in full with no changes unless prior written agreement is obtained from 3M, and (2) neither the copy nor the original is resold or otherwise distributed with the intention of earning a profit thereon.

Document Group:	29-1503-1	Version Number:	2.00
Issue Date:	04/09/15	Supersedes Date:	09/27/11

Product identifier

3M™Wind Urethane Structural Adhesive W1610

ID Number(s):

70-0066-6886-0, FS-9100-5228-1

Recommended use

Adhesive

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)

Emergency telephone number

1-800-364-3577 or (651) 737-6501 (24 hours)

This product is a kit or a multipart product which consists of multiple, independently packaged components. A Safety Data Sheet (SDS), Article Information Sheet (AIS), or Article Information Letter (AIL) for each of these components is included. Please do not separate the component documents from this cover page. The document numbers for components of this product are:

29-1501-5, 29-1502-3

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



Safety Data Sheet

Copyright, 2015, 3M Company.

All rights reserved. Copying and/or downloading of this information for the purpose of properly utilizing 3M products is allowed provided that: (1) the information is copied in full with no changes unless prior written agreement is obtained from 3M, and (2) neither the copy nor the original is resold or otherwise distributed with the intention of earning a profit thereon.

Document Group:	29-1501-5	Version Number:	2.00
Issue Date:	04/15/15	Supersedes Date:	09/27/11

SECTION 1: Identification

1.1. Product identifier

3M™ Wind Urethane Structural Adhesive W1610 Part A (Hardener)

1.2. Recommended use and restrictions on use

Recommended use

Adhesive

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

Serious Eye Damage/Irritation: Category 2B.

Respiratory Sensitizer: Category 1A.

Skin Sensitizer: Category 1A.

Specific Target Organ Toxicity (respiratory irritation): Category 3.

2.2. Label elements

Signal word

Danger

Symbols

Exclamation mark | Health Hazard |

Pictograms



Hazard Statements

Causes eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
May cause respiratory irritation.

Precautionary Statements

Prevention:

Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
In case of inadequate ventilation wear respiratory protection.
Wear protective gloves.
Wash thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.

Response:

IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
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.
Call a POISON CENTER or doctor/physician if you feel unwell.

Storage:

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal:

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

2.3. Hazards not otherwise classified

Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
HEXAMETHYLENE DIISOCYANATE POLYMER	28182-81-2	95 - 100 Trade Secret *
HEXAMETHYLENE DIISOCYANATE	822-06-0	< 0.2 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 wash with soap and water. Remove contaminated clothing and wash before reuse. 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

Closed containers exposed to heat from fire may build pressure and explode.

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

Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Contain spill. Pour isocyanate decontaminant solution (90% water, 8% concentrated ammonia, 2% detergent) on spill and allow to react for 10 minutes. Or pour water on spill and allow to react for more than 30 minutes. Cover with absorbent material. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a container approved for transportation by appropriate authorities, but do not seal the container for 48 hours to avoid pressure build-up. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Dispose of collected material as soon as possible.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid eye contact. Do not use in a confined area with minimal air exchange. 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. Wash

contaminated clothing before reuse. Keep away from reactive metals (eg. Aluminum, zinc etc.) to avoid the formation of hydrogen gas that could create an explosion hazard.

7.2. Conditions for safe storage including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed to prevent contamination with water or air. If contamination is suspected, do not reseal container. Store away from heat. Store away from strong bases.

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
HEXAMETHYLENE DIISOCYANATE POLYMER	28182-81-2	CMRG	TWA:0.5 mg/m ³ ;STEL:1 mg/m ³	
HEXAMETHYLENE DIISOCYANATE	822-06-0	CMRG	CEIL:0.02 ppm	
HEXAMETHYLENE DIISOCYANATE	822-06-0	ACGIH	TWA:0.005 ppm	
FREE ISOCYANATES	822-06-0	Manufacturer determined	TWA:0.005 ppm;STEL:0.02 ppm	

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.

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.

Gloves made from the following material(s) are recommended: Butyl Rubber
 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 – Butyl rubber
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 and particulates

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

General Physical Form:	Liquid
Odor, Color, Grade:	Pale yellow liquid with slight odor
Odor threshold	<i>No Data Available</i>
pH	<i>Not Applicable</i>
Melting point	Approximately
Boiling Point	<i>Not Applicable</i>
Flash Point	442 °F [<i>Test Method: Closed Cup</i>]
Evaporation rate	<i>No Data Available</i>
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	<i>No Data Available</i>
Flammable Limits(UEL)	<i>No Data Available</i>
Vapor Pressure	0.0000000052 mmHg [<i>@ 68 °F</i>]
Vapor Density	<=1 [<i>Ref Std: AIR=1</i>]
Density	1.17 g/ml
Specific Gravity	1.17 [<i>Ref Std: WATER=1</i>]
Solubility in Water	Nil [<i>Details: Reacts slowly with water to liberate CO2 gas</i>]
Solubility- non-water	<i>No Data Available</i>
Partition coefficient: n-octanol/ water	<i>No Data Available</i>
Autoignition temperature	>=200 °C
Decomposition temperature	<i>No Data Available</i>
Viscosity	3,000 MPa-s [<i>@ 23 °C</i>]
Average particle size	<i>No Data Available</i>
Bulk density	<i>No Data Available</i>
Hazardous Air Pollutants	<i>No Data Available</i>
Molecular weight	<i>No Data Available</i>
Volatile Organic Compounds	<i>No Data Available</i>
Percent volatile	<i>No Data Available</i>
Percent volatile	<i>No Data Available</i>
Softening point	<i>No Data Available</i>
VOC Less H2O & Exempt Solvents	<i>No Data Available</i>

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 may occur.

10.4. Conditions to avoid

Heat
Sparks and/or flames

10.5. Incompatible materials

Water
Amines
Strong bases
Alcohols
Reactive metals

No Data Available

10.6. Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
Carbon monoxide	Oxidation, heat or reaction
Carbon dioxide	Oxidation, heat or reaction
Hydrogen Cyanide	Oxidation, heat or reaction
Oxides of Nitrogen	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:

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Allergic Respiratory Reaction: Signs/symptoms may include difficulty breathing, wheezing, cough, and tightness of chest.

Skin Contact:

Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness. Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye Contact:

Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Additional Information:

Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

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
HEXAMETHYLENE DIISOCYANATE POLYMER	Inhalation-Dust/Mist (4 hours)	Professional judgement	LC50 estimated to be 1 - 5 mg/l
HEXAMETHYLENE DIISOCYANATE POLYMER	Dermal	Rabbit	LD50 > 5,000 mg/kg
HEXAMETHYLENE DIISOCYANATE POLYMER	Ingestion	Rat	LD50 > 5,000 mg/kg
HEXAMETHYLENE DIISOCYANATE	Dermal	Rabbit	LD50 570 mg/kg
HEXAMETHYLENE DIISOCYANATE	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.12 mg/l
HEXAMETHYLENE DIISOCYANATE	Ingestion	Rat	LD50 710 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
HEXAMETHYLENE DIISOCYANATE POLYMER	Rabbit	Mild irritant
HEXAMETHYLENE DIISOCYANATE	Rabbit	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
HEXAMETHYLENE DIISOCYANATE POLYMER	Rabbit	Moderate irritant
HEXAMETHYLENE DIISOCYANATE	Rabbit	Corrosive

Skin Sensitization

Name	Species	Value
HEXAMETHYLENE DIISOCYANATE POLYMER	Guinea pig	Sensitizing
HEXAMETHYLENE DIISOCYANATE	Multiple animal species	Sensitizing

Respiratory Sensitization

Name	Species	Value
HEXAMETHYLENE DIISOCYANATE POLYMER	similar compounds	Some positive data exist, but the data are not sufficient for classification
HEXAMETHYLENE DIISOCYANATE	Human and animal	Sensitizing

Germ Cell Mutagenicity

Name	Route	Value
HEXAMETHYLENE DIISOCYANATE POLYMER	In Vitro	Not mutagenic
HEXAMETHYLENE DIISOCYANATE POLYMER	In vivo	Not mutagenic
HEXAMETHYLENE DIISOCYANATE	In Vitro	Not mutagenic
HEXAMETHYLENE DIISOCYANATE	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
------	-------	---------	-------

HEXAMETHYLENE DIISOCYANATE	Inhalation	Rat	Not carcinogenic
----------------------------	------------	-----	------------------

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
HEXAMETHYLENE DIISOCYANATE	Inhalation	Not toxic to female reproduction	Rat	NOAEL 0.002 mg/l	7 weeks
HEXAMETHYLENE DIISOCYANATE	Inhalation	Not toxic to development	Rat	NOAEL 0.002 mg/l	7 weeks
HEXAMETHYLENE DIISOCYANATE	Inhalation	Some positive male reproductive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.014 mg/l	4 weeks

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
HEXAMETHYLENE DIISOCYANATE POLYMER	Inhalation	respiratory irritation	May cause respiratory irritation		NOAEL Not available	
HEXAMETHYLENE DIISOCYANATE	Inhalation	respiratory irritation	May cause respiratory irritation	Human and animal	NOAEL Not available	
HEXAMETHYLENE DIISOCYANATE	Inhalation	blood	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
HEXAMETHYLENE DIISOCYANATE POLYMER	Inhalation	immune system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL .084 mg/l	2 weeks
HEXAMETHYLENE DIISOCYANATE POLYMER	Inhalation	blood	All data are negative	Rat	NOAEL .084 mg/l	2 weeks
HEXAMETHYLENE DIISOCYANATE	Inhalation	liver kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.002 mg/l	3 weeks
HEXAMETHYLENE DIISOCYANATE	Inhalation	endocrine system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.0014 mg/l	4 weeks
HEXAMETHYLENE DIISOCYANATE	Inhalation	blood	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.0012 mg/l	2 years
HEXAMETHYLENE DIISOCYANATE	Inhalation	nervous system	All data are negative	Rat	NOAEL 0.002 mg/l	7 weeks
HEXAMETHYLENE DIISOCYANATE	Inhalation	heart	All data are negative	Rat	NOAEL 0.001 mg/l	90 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.

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 - Yes Immediate Hazard - Yes Delayed Hazard - No

15.2. State Regulations

Contact 3M for more information.

15.3. Chemical Inventories

The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information.

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 China "Measures on Environmental Management of New Chemical Substance". Certain restrictions may apply. Contact the selling division for additional information.

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.

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

The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain

restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the chemical notification requirements of TSCA.

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.

Document Group:	29-1501-5	Version Number:	2.00
Issue Date:	04/15/15	Supersedes Date:	09/27/11

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



Safety Data Sheet

Copyright,2015,3M Company.

All rights reserved. Copying and/or downloading of this information for the purpose of properly utilizing 3M products is allowed provided that: (1) the information is copied in full with no changes unless prior written agreement is obtained from 3M, and (2) neither the copy nor the original is resold or otherwise distributed with the intention of earning a profit thereon.

Document Group:	29-1502-3	Version Number:	2.00
Issue Date:	04/17/15	Supersedes Date:	09/27/11

SECTION 1: Identification

1.1. Product identifier

3M™Wind Urethane Structural Adhesive W1610 Part B (Base)

1.2. Recommended use and restrictions on use

Recommended use

Industrial use

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 1A.

2.2. Label elements

Signal word

Warning

Symbols

Exclamation mark |

Pictograms



Hazard Statements

May cause an allergic skin reaction.

Precautionary Statements**Prevention:**

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.

Disposal:

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

2.3. Hazards not otherwise classified

None.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
POLYESTER POLYOL	Trade Secret*	50 - 60
EPSILON-CAPROLACTONE-TRIMETHYLOLPROPANE POLYMER	37625-56-2	30 - 60
BIS(1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL) SEBACATE	41556-26-7	1 - 5 Trade Secret *
VINYLTRIMETHOXYSILANE	2768-02-7	0.1 - 1.5
METHYL 1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL SEBACATE	82919-37-7	0.1 - 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 wash with soap and water. Remove contaminated clothing and wash before reuse. 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.

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. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. 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

Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Seal the container. Dispose of collected material as soon as possible.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

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.

7.2. Conditions for safe storage including any incompatibilities

No special storage requirements.

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
BIS(1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL) SEBACATE	41556-26-7	CMRG	TWA:1 mg/m3	
METHYL 1,2,2,6,6-	82919-37-7	CMRG	TWA:1 mg/m3	

PENTAMETHYL-4-
PIPERIDINYL SEBACATE

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

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

None required.

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 and particulates

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

General Physical Form:	Liquid
Odor, Color, Grade:	Viscous, transparent liquid.
Odor threshold	<i>No Data Available</i>
pH	<i>No Data Available</i>
Melting point	<i>No Data Available</i>
Boiling Point	230 °C
Flash Point	>=100 °C [<i>Test Method: Closed Cup</i>]
Evaporation rate	<i>No Data Available</i>
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	<i>No Data Available</i>
Flammable Limits(UEL)	<i>No Data Available</i>

Vapor Pressure	No Data Available
Vapor Density	No Data Available
Density	No Data Available
Specific Gravity	1.13 [Ref Std: WATER=1]
Solubility In Water	No Data Available
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	300 - 400 MPa-s
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
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

Not determined

10.5. Incompatible materials

Not determined

No Data Available

10.6. Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
Carbon monoxide	Oxidation, heat or reaction
Carbon dioxide	Oxidation, heat or reaction
Oxides of Nitrogen	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:

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Skin Contact:

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:

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

Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

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 2,000 - 5,000 mg/kg
EPSILON-CAPROLACTONE-TRIMETHYLOLPROPANE POLYMER	Ingestion		LD50 > 2,000 mg/kg
BIS(1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL) SEBACATE	Ingestion	Rat	LD50 3,125 mg/kg
VINYLTRIMETHOXYSILANE	Dermal	Rabbit	LD50 3,260 mg/kg
VINYLTRIMETHOXYSILANE	Inhalation-Vapor (4 hours)	Rat	LC50 16.8 mg/l
VINYLTRIMETHOXYSILANE	Ingestion	Rat	LD50 7,120 mg/kg
METHYL 1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL SEBACATE	Ingestion	Rat	LD50 3,125 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
BIS(1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL) SEBACATE	Rabbit	No significant irritation
VINYLTRIMETHOXYSILANE	Rabbit	Minimal irritation
METHYL 1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL SEBACATE	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
BIS(1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL) SEBACATE	Rabbit	No significant irritation
VINYLTRIMETHOXYSILANE	Rabbit	No significant irritation
METHYL 1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL SEBACATE	Rabbit	No significant irritation

Skin Sensitization

Name	Species	Value
BIS(1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL) SEBACATE	Guinea pig	Sensitizing
VINYLTRIMETHOXYSILANE	Guinea pig	Some positive data exist, but the data are not sufficient for classification
METHYL 1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL SEBACATE	Guinea	Sensitizing

pig

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
BIS(1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL) SEBACATE	In Vitro	Not mutagenic
VINYLTRIMETHOXYSILANE	In vivo	Not mutagenic
VINYLTRIMETHOXYSILANE	In Vitro	Some positive data exist, but the data are not sufficient for classification
METHYL 1,2,2,6,6-PENTAMETHYL-4-PIPERIDINYL SEBACATE	In Vitro	Not mutagenic

Carcinogenicity

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

Reproductive Toxicity**Reproductive and/or Developmental Effects**

Name	Route	Value	Species	Test Result	Exposure Duration
VINYLTRIMETHOXYSILANE	Ingestion	Not toxic to male reproduction	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
VINYLTRIMETHOXYSILANE	Ingestion	Not toxic to development	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
VINYLTRIMETHOXYSILANE	Ingestion	Some positive female reproductive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
VINYLTRIMETHOXYSILANE	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 1.8 mg/l	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
VINYLTRIMETHOXYSILANE	Inhalation	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL mg/l	14 weeks
VINYLTRIMETHOXYSILANE	Inhalation	hematopoietic system eyes	All data are negative	Rat	NOAEL 2.4 mg/l	14 weeks
VINYLTRIMETHOXYSILANE	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 250 mg/kg/day	40 days
VINYLTRIMETHOXYSILANE	Ingestion	endocrine system hematopoietic system liver immune system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,000 mg/kg/day	40 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.

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 - No

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.

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

Document Group:	29-1502-3	Version Number:	2.00
Issue Date:	04/17/15	Supersedes Date:	09/27/11

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