

# LOCTITE<sup>®</sup> AA 3311™

Known as LOCTITE<sup>®</sup> 3311™ August 2020

## PRODUCT DESCRIPTION

LOCTITE<sup>®</sup> AA 3311™ provides the following product characteristics:

Technology	Acrylic		
Chemical Type	Acrylated urethane		
Appearance (uncured)	Transparent liquid <sup>LMS</sup>		
Components	One component -		
	requires no mixing		
Viscosity	Low		
Cure	Ultraviolet (UV) / Visible light		
Cure Benefit	Production - high speed curing		
Application	Bonding		
Flexibility	Enhances load bearing & shock		
	absorbing characteristics of the bond		
	area.		

LOCTITE<sup>®</sup> AA 3311™ is primarily designed for bonding rigid or flexible PVC to polycarbonate, while not inducing stress cracking under typical molded stress levels. It enables easy assembly of components with close fitting tolerances (i.e. joining polycarbonate to flexible PVC tubing), and is recommended for applications involving small gaps less than 0.25mm. It has also shown excellent adhesion to a wide variety of substrates including glass, many plastics and most metals. Suitable for use in the assembly of **disposable medical devices**.

# ISO-10993

LOCTITE<sup>®</sup> AA  $3311^{\text{TM}}$  has been tested to Henkel's test protocols based on ISO 10993 biocompatibility standards, as a means to assist in the selection of products for use in the medical device industry.

# TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C 1.1
Flash Point - See SDS
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):
Spindle 1, speed 20 rpm 200 to 400<sup>LMS</sup>

## TYPICAL CURING PERFORMANCE

LOCTITE<sup>®</sup> AA 3311<sup>™</sup> can be cured by exposure to UV and/or visible light of sufficient intensity. To obtain full cure on surfaces exposed to air, radiation @ 220 to 260 nm is also required. The speed of cure will depend upon the UV intensity and spectral distribution of the light source, the exposure time and the light transmittance of the substrates.

## **Stress Cracking**

Liquid adhesive is applied to a medical grade polycarbonate bar 6.4 cm by 13 mm by 3 mm which is then flexed to induce a known stress level.

Stress Cracking, ASTM D 3929, minutes:
7 N/mm² stress on bar >15
12 N/mm² stress on bar 3 to 4

#### **Fixture Time**

Fixture time is defined as the time to develop a shear strength of 0.1 N/mm<sup>2</sup>.

UV Fixture Time, Glass microscope slides, seconds:

Black light, Zeta<sup>®</sup> 7500 light source: 6 mW/cm² , measured @ 365 nm ≤15<sup>LMS</sup>

UV Fixture Time, Polycarbonate, seconds:

Metal halide bulb:

30 mW/cm<sup>2</sup>, measured @ 365 nm, <5

Electrodeless, H & V bulbs:

50 mW/cm<sup>2</sup> <5

Electrodeless, D bulb:

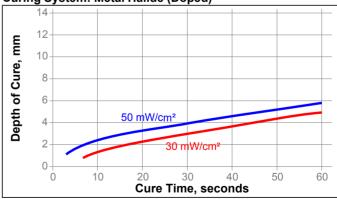
50 mW/cm<sup>2</sup> <5

## Depth of Cure vs. Irradiance (365 nm)

The graphs below show the increase in depth of cure with time at 30 mW/cm<sup>2</sup> - 100 mW/cm<sup>2</sup> as measured from the thickness of the cured product formed in a 9.5mm trough.

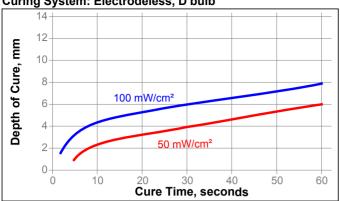
**Note:** When exposed to a V Bulb at irradiances of 50 and 100 mW/cm² for 30 seconds, a depth of cure greater than 13 mm was achieved. The performance for medium pressure Hg will be similar to Electrodeless system, H bulb

**Curing System: Metal Halide (Doped)** 

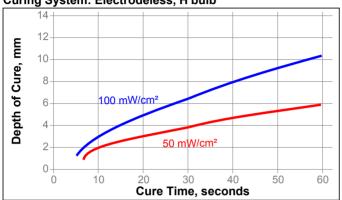




Curing System: Electrodeless, D bulb



Curing System: Electrodeless, H bulb



## TYPICAL PROPERTIES OF CURED MATERIAL

30 mW/cm<sup>2</sup>, measured @ 365 nm, for 80 seconds using a glass filtered metal halide light source

#### **Physical Properties**

Shore Hardness, ISO 868, Durometer D		64
Refractive Index		1.5
Water Absorption, ISO 62, %:		
2 hours in boiling water		5.36
Elongation, at break, ISO 527-3, %		265
Tensile Modulus, ISO 527-3	N/mm² (psi)	669 (97,000)
Tensile Strength, at break, ISO 527-3	N/mm² (psi)	23 (3,300)

#### **Electrical Properties** Surface Decictivity IEC 60003 O

Surface Resistivity, IEC 60093, 12	1.0 ^ 10
Volume Resistivity, IEC 60093, Ω·cm	8.4×10 <sup>14</sup>
Dielectric Breakdown Strength, , kV/mm	31
Dielectric Constant / Dissipation Factor, IEC 60250:	
100 Hz	4.56 / 0.05
1 kHz	4.41 / 0.02
1 MHz	4.02 / 0.03

# TYPICAL PERFORMANCE OF CURED MATERIAL

# **Adhesive Properties**

Cured @ 30 mW/cm<sup>2</sup>, measured @ 365 nm, for 80 seconds using a metal halide light source

Lap Shear Strength:

Polycarbonate:

0.5 mm gap N/mm<sup>2</sup> \*5.2 (psi) (750)

\* substrate failure

#### TYPICAL ENVIRONMENTAL RESISTANCE

Cured @ 30 mW/cm<sup>2</sup>, measured @ 365 nm, for 80 seconds using a metal halide light source.

Lap Shear Strength:

Polycarbonate:

0.5 mm gap

#### **Chemical/Solvent Resistance**

Aged under conditions indicated and tested @ °C

		% of initial strength		
Environment	°C	2 h	24 h	170 h
Boiling water	100	* 100		
Water immersion	49			* 100
Isopropanol immersion	21		* 100	
Heat/humidity	38			* 100

## **Heat Aging**

Lap Shear Strength, % of initial strength:

Polycarbonate:

Aged @ 71 °C for 170 hours	*100
Aged @ 71 °C for 340 hours	*100
Aged @ 93 °C for 170 hours	*100
Aged @ 93 °C for 340 hours	*100

<sup>\*</sup> substrate failure

#### **Effects of Sterilization**

In general, products similiar in composition to LOCTITE® AA 3311™ subjected to standard sterilization methods, such as EtO and Gamma Radiation (25 to 50 kiloGrays cumulative) show excellent bond strength retention. LOCTITE® AA 3311™ maintains bond strength after 1 cycle of steam autoclave. It is recommended that customers test specific parts after subjecting them to the preferred sterilization method. Consult with Loctite<sup>®</sup> for a product recommendation if your device will see more than 3 sterilization cycles.

#### **GENERAL INFORMATION**

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Safety Data Sheet (SDS).

## **Directions for use**

1 0~1015

- 1. This product is light sensitive; exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and
- The product should be dispensed from applicators with black feedlines.
- For best performance bond surfaces should be clean and free from grease.
- Cure rate is dependent on lamp intensity, distance from light source, depth of cure needed or bondline gap and light transmittance of the substrate through which the radiation must pass.
- 5. Recommended intensity for cure in bondline situation is 5 mW/cm² minimum (measured at the bondline) with an exposure time of 4-5 times the fixture time at the same intensity.
- 6. For dry curing of exposed surfaces, higher intensity UV is required (100 mW/cm<sup>2</sup>).
- Cooling should be provided for temperature sensitive substrates such as thermoplastics.
- Plastic grades should be checked for risk of stress cracking when exposed to liquid adhesive.
- Excess uncured adhesive can be wiped away with organic solvent (e.g. Acetone).



 Bonds should be allowed to cool before subjecting to any service loads

## Loctite Material Specification<sup>LMS</sup>

LMS dated October 2, 2000. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

#### Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties. Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Henkel representative.

#### Conversions

 $({}^{\circ}C \times 1.8) + 32 = {}^{\circ}F \\ kV/mm \times 25.4 = V/mil \\ mm / 25.4 = inches \\ \mu m / 25.4 = mil \\ N \times 0.225 = lb \\ N/mm \times 5.71 = lb/in \\ N/mm^2 \times 145 = psi \\ MPa \times 145 = psi \\ N m \times 8.851 = lb \cdot in \\ N \cdot m \times 0.738 = lb \cdot ft \\ N \cdot mm \times 0.142 = oz \cdot in \\ mPa \cdot s = cP$ 

#### Disclaimer

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, or Henkel Canada Corporation, the following disclaimer is applicable:
The data contained herein are furnished for information only and are believed to

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically** 

disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

#### Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 1.2





Revision Number: 007.1 Issue date: 12/02/2016

# 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: LOCTITE AA 3311 RADITION CURING IDH number: 146461

ADHESIVE known as 3311 Light Cure

Adhesive Medic

Product type:Ultraviolet adhesiveItem number:19737Restriction of Use:None identifiedRegion:United States

Company address:Contact information:Henkel CorporationTelephone: (860) 571-5100

One Henkel Way

MEDICAL EMERGENCY Phone: Poison Control Center
Rocky Hill, Connecticut 06067

1-877-671-4608 (toll free) or 1-303-592-1711

TRANSPORT EMERGENCY Phone: CHEMTREC 1-800-424-9300 (toll free) or 1-703-527-3887

Internet: www.henkelna.com

# 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER: DO NOT SPRAY. DO NOT HEAT.

COMBUSTIBLE LIQUID.

HARMFUL IF SWALLOWED OR IN CONTACT WITH SKIN.

CAUSES SKIN IRRITATION.

MAY CAUSE AN ALLERGIC SKIN REACTION.

CAUSES SERIOUS EYE DAMAGE.

HAZARD CLASS	HAZARD CATEGORY
FLAMMABLE LIQUID	4
ACUTE TOXICITY ORAL	4
ACUTE TOXICITY DERMAL	4
SKIN IRRITATION	2
SERIOUS EYE DAMAGE	1
SKIN SENSITIZATION	1

#### PICTOGRAM(S)



## **Precautionary Statements**

Prevention:

Keep away from heat, sparks, open flames, hot surfaces - no smoking. Avoid breathing vapors, mist, or spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves, eye protection, and face protection.

Response:

If SWALLOWED: Immediately call poison control or physician if you feel unwell. IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison control center or physician. Rinse mouth. If skin irritation or rash occurs: Get medical attention. Take off contaminated clothing. In case of fire: Use foam, dry chemical or carbon dioxide to extinguish.

IDH number: 146461 Product name: LOCTITE AA 3311 RADITION CURING ADHESIVE known as 3311 Light Cure Adhesive Medic

Storage:

Store in a well-ventilated place. Keep cool.

Disposal:

IDH number: 146461

Dispose of contents and/or container according to Federal, State/Provincial and local

governmental regulations.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

# 3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Isobornyl acrylate	5888-33-5	30 - 40
N,N-Dimethylacrylamide	2680-03-7	20 - 30
Photoinitiator	24650-42-8	1 - 5
Gamma-glycidoxypropyl trimethoxysilane	2530-83-8	1 - 5

<sup>\*</sup> Exact percentages may vary or are trade secret. Concentration range is provided to assist users in providing appropriate protections.

## 4. FIRST AID MEASURES

**Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is

difficult, give oxygen. Get medical attention.

Skin contact: Immediately wash skin thoroughly with soap and water. Remove contaminated

clothing and footwear. If symptoms develop and persist, get medical attention.

Wash clothing before reuse.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15

minutes. Get immediate medical attention.

**Ingestion:** Do not induce vomiting. Never give anything by mouth to an unconscious

person. Keep individual calm. Get immediate medical attention.

Symptoms: See Section 11.

# 5. FIRE FIGHTING MEASURES

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide.

Special firefighting procedures: Wear self-contained breathing apparatus and full protective clothing, such as

turn-out gear. Water may be unsuitable as an extinguishing media, but may be

helpful in keeping adjacent containers cool.

Uncontrolled polymerization may occur at high temperatures resulting in

explosions or rupture of storage containers.

Product name: LOCTITE AA 3311 RADITION CURING ADHESIVE known as 3311 Light Cure
Adhesive Medic

Hazardous combustion products: Oxides of carbon. Oxides of nitrogen. Oxides of phosphorus. Oxides of silicon.

Formaldehyde. Hydrogen cyanide. Amines. Isocyanates. Toxic fumes.

Irritating organic vapours.

# 6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Remove all sources of ignition. Do not allow product to enter sewer or

waterways.

Clean-up methods: Ensure adequate ventilation. Soak up with inert absorbent material (e.g. sand,

silica gel, acid binder, universal binder, sawdust). Store in a partly filled, closed container until disposal. Refer to Section 8 "Exposure Controls /

Personal Protection" prior to clean up.

# 7. HANDLING AND STORAGE

**Handling:** Use only with adequate ventilation. Prevent contact with eyes, skin and

clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Do not taste or swallow. DO NOT heat or spray. Use only in area provided with

appropriate exhaust ventilation. Refer to Section 8.

**Storage:** For safe storage, store at or below 26 °C (78.8 °F)

Keep in a cool, well ventilated area away from heat, sparks and open flame.

Keep container tightly closed until ready for use.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Isobornyl acrylate	None	None	None	None
N,N-Dimethylacrylamide	None	None	None	0.1 mg/m3 TWA (Skin) 0.025 ppm TWA (Skin)
Photoinitiator	None	None	None	None
Gamma-glycidoxypropyl trimethoxysilane	None	None	None	None

Engineering controls: Local exhaust ventilation is recommended when general ventilation is not

sufficient to control airborne contamination below occupational exposure

limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure

limit(s). If this material is handled at elevated temperatures or under mist forming conditions, without engineering controls, a NIOSH approved respirator

must be used.

**Eye/face protection:** Safety goggles or safety glasses with side shields. Full face protection should

be used if the potential for splashing or spraying of product exists.

**Skin protection:**Use impermeable gloves and protective clothing as necessary to prevent skin

contact. Neoprene gloves.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:

Color:
Pale yellow
Odor:
Mild
Odor threshold:
Not available.

IDH number: 146461 Product name: LOCTITE AA 3311 RADITION CURING ADHESIVE known as 3311 Light Cure

pH: Not applicable
Vapor pressure: Not available.
Boiling point/range: > 93 °C (> 199.4 °F)
Melting point/ range: Not available

Melting point/ range:Not available.Specific gravity:1.1013Vapor density:Not available.

Flash point: 77.2 °C (170.96 °F) Pensky Martens closed cup

Flammable/Explosive limits - lower:

Flammable/Explosive limits - upper:

Autoignition temperature:

Flammability:

Flammability:

Evaporation rate:

Solubility in water:

Partition coefficient (n-octanol/water):

Not available.

Not available.

Not available.

**VOC content:** 4.12 %; 45.37 g/l (process)

0.68 %; 7.49 g/l (potential) 4.8 %; 52.86 g/l (total) (ASTM D5403)

Viscosity: Not available.

Decomposition temperature: Not available.

# 10. STABILITY AND REACTIVITY

**Stability**: Stable under normal conditions of storage and use.

Hazardous reactions: May occur.

Hazardous decomposition

products:

IDH number: 146461

Oxides of carbon. Oxides of nitrogen. Oxides of silicon. Oxides of phosphorus. Irritating

organic vapours. Formaldehyde. Isocyanates. Hydrogen cyanide. Amines.

Incompatible materials: Strong oxidizing agents. Strong reducing agents. Strong acids and strong bases. Free radical

initiators. Water. Humid air.

Reactivity: Not available.

Conditions to avoid: Heat, flames, sparks and other sources of ignition. Avoid temperatures above 26°C (80°F).

Store away from incompatible materials. Ultraviolet radiation. Direct sunlight. Freezing

conditions.

# 11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes, Ingestion

#### Potential Health Effects/Symptoms

Inhalation: Modified acrylamide is harmful if inhaled. Vapors and mists will irritate nose and throat and

possibly eyes. DO NOT heat or spray as this increases the inhalation hazard.

Skin contact: Causes skin irritation. May cause allergic skin reaction. Harmful in contact with skin. Modified

acrylamide may be absorbed through skin in harmful amounts.

**Eye contact:** Causes serious eye damage.

**Ingestion:** Modified acrylamide is harmful if swallowed.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Isobornyl acrylate	None	Irritant, Allergen
N,N-Dimethylacrylamide	None	Irritant, Eyes, Mutagen, Kidney, Less weight gain and food intake.
Photoinitiator	None	No Target Organs
Gamma-glycidoxypropyl trimethoxysilane	None	Allergen, Irritant

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Isobornyl acrylate	No	No	No
N,N-Dimethylacrylamide	No	No	No
Photoinitiator	No	No	No
Gamma-glycidoxypropyl trimethoxysilane	No	No	No

# 12. ECOLOGICAL INFORMATION

Ecological information: Not available.

## 13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

**Recommended method of disposal:**Dispose of according to Federal, State and local governmental regulations.

**Hazardous waste number:**Not a RCRA hazardous waste.

## 14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Combustible liquid, n.o.s. (N,N-Dimethylacrylamide)

Hazard class or division: Combustible Liquid

Identification number: NA 1993
Packing group: III

International Air Transportation (ICAO/IATA)

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (2,2-Dimethoxy-1,2-

diphenylethan-1-one, Isobornyl acrylate)

Hazard class or division: 9

Identification number: UN 3082 Packing group: III

Water Transportation (IMO/IMDG)

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,2-

Dimethoxy-1,2-diphenylethan-1-one, Isobornyl acrylate)

Hazard class or division: 9

Identification number: UN 3082 Packing group: III

Marine pollutant: 2,2-Dimethoxy-1,2-diphenylethan-1-one, Isobornyl acrylate

# 15. REGULATORY INFORMATION

**United States Regulatory Information** 

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act

Inventory.

TSCA 12 (b) Export Notification: None above reporting de minimis

CERCLA/SARA Section 302 EHS:
CERCLA/SARA Section 311/312:
CERCLA/SARA Section 313:
None above reporting de minimis.
Immediate Health, Delayed Health, Fire
None above reporting de minimis.

California Proposition 65: No California Proposition 65 listed chemicals are known to be present.

**Canada Regulatory Information** 

IDH number: 146461

CEPA DSL/NDSL Status: Contains one or more components listed on the Non-Domestic Substances List. All other

components are listed on or are exempt from listing on the Domestic Substances List. Components listed on the NDSL must be tracked by all Canadian Importers of Record as required by Environment Canada. They may be imported into Canada in limited quantities.

Please contact Regulatory Affairs for additional details.

## 16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: New Safety Data Sheet format.

Prepared by: Catherine Bimler, Regulatory Affairs Specialist

**Issue date:** 12/02/2016

**DISCLAIMER:** The data contained herein are furnished for information only and are believed to be reliable. However, Henkel Corporation and its affiliates ("Henkel") does not assume responsibility for any results obtained by persons over whose methods Henkel has no control. It is the user's responsibility to determine the suitability of Henkel's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any Henkel's products. In light of the foregoing, Henkel specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of Henkel's products. Henkel further disclaims any liability for consequential or incidental damages of any kind, including lost profits.