

# SAFETY DATA SHEET

Revision: 2.0 Date: 14.08.2015

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 2015/830

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## 1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1 Product identifier**  
Product Name QA-600 Adhesive Part A  
Chemical Name Mixture  
CAS No. Mixture  
EINECS No. Mixture  
REACH Registration No. None assigned.
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**  
Identified Use(s) Adhesives.  
Uses Advised Against None known.
- 1.3 Details of the supplier of the safety data sheet**  
Company Identification VISHAY MEASUREMENTS GROUP, INC.  
Post Office Box 27777  
Raleigh, NC 27611  
USA  
Telephone 919-365-3800  
Fax 919-365-3945  
E-Mail (competent person) mm.us@vishaypg.com
- 1.4 Emergency telephone number** 1-800-424-9300  
CHEMTREC

## 2. SECTION 2: HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture**  
**2.1.1 GHS Classification** Flam. Liq. 2; H225  
Acute Tox. 4; H302  
Skin Sens. 1; H317  
Eye Irrit. 2; H319  
STOT SE 3; H335  
Carc. 2; H351
- 2.2 Label elements**  
Product Name QA-600 Adhesive Part A  
Hazard Pictogram(s)  

- Signal Word(s) Danger  
Contains: Tetrahydrofuran and Formaldehyde, polymer with 2-(chloromethyl)oxirane and 4,4'-(1-methylethylidene)bis[phenol].
- Hazard Statement(s)  
H225: Highly flammable liquid and vapour.  
H302: Harmful if swallowed.  
H317: May cause an allergic skin reaction.  
H319: Causes serious eye irritation.  
H335: May cause respiratory irritation.  
H351: Suspected of causing cancer.
- Precautionary Statement(s)  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P201: Obtain special instructions before use.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.

# SAFETY DATA SHEET

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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 2015/830

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P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P302+P352: IF ON SKIN: Wash with plenty of water.  
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

## Additional Information

EUH019: May form explosive peroxides.

### 2.3 Other hazards

None.

## 3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances Not applicable

### 3.2 Mixtures

GHS Classification

Chemical identity of the substance	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard Statement(s)
Tetrahydrofuran	55 – 60	109-99-9	203-726-8	None assigned	Flam. Liq. 2; H225 Acute Tox. 4; H302 Eye Irrit. 2; H319 (SCL: $\geq$ 25%) STOT SE 3; H335 (SCL: $\geq$ 25%) Carc. 2; H351 EUH019
Formaldehyde, polymer with 2-(chloromethyl)oxirane and 4,4'-(1-methylethylidene)bis[phenol]	39 - 44	28906-96-9	-	None assigned	Eye Irrit. 2; H319 Skin Sens. 1; H317

H225: Highly flammable liquid and vapour. H302: Harmful if swallowed. H317: May cause an allergic skin reaction. H319: Causes serious eye irritation. H335: May cause respiratory irritation. H351: Suspected of causing cancer. EUH019: May form explosive peroxides. SCL: Specific Concentration Limit.

## 4. SECTION 4: FIRST AID MEASURES



### 4.1 Description of first aid measures

Self-protection of the first aider

Avoid breathing vapours. Wear suitable protective clothing. Wear suitable respiratory protective equipment if exposure to high levels of material are likely. Do not use mouth-to-mouth resuscitation.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Apply artificial respiration if breathing has ceased or shows signs of failing. IF exposed or concerned: Call a POISON CENTER/doctor.

Skin Contact

IF ON SKIN: Remove contaminated clothing and wash all affected areas with plenty of water. Contaminated clothing should be thoroughly cleaned. If skin irritation or rash occurs: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention.

Eye Contact

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.

Ingestion

IF SWALLOWED: Rinse mouth. Make victim drink plenty of water. Do not give milk or alcoholic beverages. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless instructed to do so by medical personnel. Call a POISON CENTER/doctor if you feel unwell. IF exposed or concerned: Get medical advice/attention.

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1272/2008 (CLP) & 2015/830

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- |            |                                                                                   |                                                                                                                                                          |
|------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>4.2</b> | <b>Most important symptoms and effects, both acute and delayed</b>                | Harmful if swallowed. May cause an allergic skin reaction. Causes serious eye irritation. May cause respiratory irritation. Suspected of causing cancer. |
| <b>4.3</b> | <b>Indication of any immediate medical attention and special treatment needed</b> | Treat symptomatically.                                                                                                                                   |

## 5. SECTION 5: FIREFIGHTING MEASURES

- |            |                                                              |                                                                                                                                                                                                                                                                   |
|------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>5.1</b> | <b>Extinguishing media</b><br>Suitable Extinguishing media   | As appropriate for surrounding fire. In case of fire use carbon dioxide or dry agent.                                                                                                                                                                             |
|            | Unsuitable extinguishing media                               | Do not use water jet. Direct water jet may spread the fire.                                                                                                                                                                                                       |
| <b>5.2</b> | <b>Special hazards arising from the substance or mixture</b> | Highly flammable liquid and vapour. May decompose in a fire giving off toxic fumes. Carbon monoxide, carbon dioxide, phenolics and explosive peroxides. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. |
| <b>5.3</b> | <b>Advice for fire-fighters</b>                              | Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.                                 |

## 6. SECTION 6: ACCIDENTAL RELEASE MEASURES

- |            |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.1</b> | <b>Personal precautions, protective equipment and emergency procedures</b> | Ensure adequate ventilation. Stop leak if safe to do so. Eliminate all ignition sources if safe to do so. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use personal protective equipment as required. See Section: 8. Avoid breathing vapours.                                                                                                                                                                                     |
| <b>6.2</b> | <b>Environmental precautions</b>                                           | Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.                                                                                                                                                                                                                                                       |
| <b>6.3</b> | <b>Methods and material for containment and cleaning up</b>                | Ensure suitable personal protection during removal of spillages. Use non-sparking equipment when picking up flammable spill. Use waterspray to 'knock down' vapour. Adsorb spillages onto sand, earth or any suitable adsorbent material. Do NOT absorb in saw-dust or other combustible absorbents. Transfer to a container for disposal. Ventilate the area and wash spill site after material pick-up is complete. Dispose of this material and its container as hazardous waste. |
| <b>6.4</b> | <b>Reference to other sections</b>                                         | See Section: 8, 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## 7. SECTION 7: HANDLING AND STORAGE

- |            |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>7.1</b> | <b>Precautions for safe handling</b>                                | Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid breathing vapours. Use personal protective equipment as required. See Section: 8. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Use only non-sparking tools. |
| <b>7.2</b> | <b>Conditions for safe storage, including any incompatibilities</b> | Ground/bond container and receiving equipment. Keep only in original container. Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from light. Vapor space above stored liquid may be flammable/explosive unless blanketed with inert gas.                                                                                                                                                                                                   |
|            | Storage temperature                                                 | Ambient.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|            | Storage life                                                        | Stable under normal conditions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|            | Incompatible materials                                              | Keep away from: Oxidizing agents, strong bases, Reducing agents, Acids and Alkalis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>7.3</b> | <b>Specific end use(s)</b>                                          | Adhesives. See Section: 1.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

# SAFETY DATA SHEET

Revision: 2.0 Date: 14.08.2015

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 2015/830

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## 8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### 8.1.1 Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )	Note
Tetrahydrofuran	109-99-9	200	590	250*	735*	NIOSH
Tetrahydrofuran	109-99-9	200	590	-	-	OSHA

Note: OSHA 1910.1000 TABLE Z-1 / \*NIOSH 15 minutes average value

#### 8.1.2 Biological limit value

Not established.

#### 8.1.3 PNECs and DNELs

Not established.

### 8.2 Exposure controls

#### 8.2.1 Appropriate engineering controls

Ensure adequate ventilation or use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Local exhaust recommended.

#### 8.2.2 Individual protection measures, such as personal protective equipment (PPE)

Keep good industrial hygiene. Avoid contact with skin, eyes or clothing. Do not breathe vapour. Wash hands before breaks and after work. Keep work clothes separately. Do not eat, drink or smoke at the work place.

Eye/ face protection



Wear eye protection with side protection (EN166). Recommended: Safety spectacles/goggles/full face shield.

Skin protection



Hand protection: Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer. Recommended: Rubber or Neoprene.

Body protection: Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection



In case of inadequate ventilation wear respiratory protection. Open system(s): Wear suitable respiratory protective equipment. In case of high airborne concentrations, wear suitable positive pressure respiratory protection equipment.

Thermal hazards

Not applicable.

#### 8.2.3 Environmental Exposure Controls

Avoid release to the environment.

## 9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance

The following information is based on a consideration of the properties of the main components of this mixture. (Tetrahydrofuran CAS# 109-99-9)

Almost colourless Liquid

Odour

Ether-like Odour

Odour threshold

Not available.

pH

Not established.

Melting point/freezing point

-108.44 °C

Initial boiling point and boiling range

66°C (CAS# 109-99-9)

Flash point

-14 °C (CAS# 109-99-9)

Evaporation rate

8 (BuAc = 1) (CAS# 109-99-9)

Flammability (solid, gas)

Not applicable - Liquid.

Upper/lower flammability or explosive limits

Flammable Limits (Lower) (%v/v): 2.0 (CAS# 109-99-9)

Flammable Limits (Upper) (%v/v): 11.8 (CAS# 109-99-9)

# SAFETY DATA SHEET

Revision: 2.0 Date: 14.08.2015

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 2015/830

www.vishaypg.com

Vapour pressure	129 (mmHg) @ (20°C) (CAS# 109-99-9)
Vapour density	2.4 (Air = 1) (CAS# 109-99-9)
Relative density	0.9 (H <sub>2</sub> O = 1) (Mixture)
Solubility(ies)	> 50% (Water) (Mixture)
Partition coefficient: n-octanol/water	0.45 log Pow (25 °C) (CAS# 109-99-9)
Auto-ignition temperature	321 °C (CAS# 109-99-9)
Decomposition Temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive. (May form explosive peroxides.)
Oxidising properties	Not oxidising.

9.2 Other information Volatile Organic Compound Content (%): 58.3

## 10. SECTION 10: STABILITY AND REACTIVITY

10.1 Stability and reactivity	Vapor space above stored liquid may be flammable/explosive unless blanketed with inert gas. May form peroxides on prolonged storage if air is present.
10.2 Chemical stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	Highly flammable liquid and vapour. The vapour may be invisible, heavier than air and spread along ground. May form explosive peroxides.
10.4 Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from light.
10.5 Incompatible materials	Keep away from: Oxidizing agents, strong bases, Reducing agents, Acids and Alkalis.
10.6 Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide, phenolics and explosive peroxides.

## 11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects (Substances in preparations / mixtures)	
Acute toxicity	
Ingestion	Acute Tox. 4: Harmful if swallowed. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 858 mg/kg bw/day.
Inhalation	Based on available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 20.0 mg/l.
Skin Contact	Based on available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.
Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/irritation	Eye Irrit. 2: Causes serious eye irritation.
Respiratory or skin sensitization	Skin Sens. 1: May cause an allergic skin reaction.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Carcinogenicity	Carc. 2: Suspected of causing cancer.
Reproductive toxicity	Based on available data, the classification criteria are not met.
STOT - single exposure	STOT SE 3: May cause respiratory irritation.
STOT - repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Based on available data, the classification criteria are not met.
11.2 Other information	
NTP Report on Carcinogens	Not listed
IARC Monographs	Not listed

## 12. SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity	Based on available data, the classification criteria are not met. Estimated Mixture LC50 >100 mg/l (Fish)
12.2 Persistence and degradability	Part of the components are poorly biodegradable.
12.3 Bioaccumulative potential	The product has low potential for bioaccumulation.
12.4 Mobility in soil	The product is predicted to have high mobility in soil. Water Soluble and Highly

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12.5	Results of PBT and vPvB assessment	volatile.
12.6	Other adverse effects	Not classified as PBT or vPvB. None known.

## 13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1	Waste treatment methods	This material and its container must be disposed of as hazardous waste. Send after pre-treatment to a appropriate hazardous waste incinerator facility according to legislation.
13.2	Additional Information	Dispose of contents in accordance with local, state or national legislation. Containers of this material may be hazardous when empty since they retain product residue.

## 14. SECTION 14: TRANSPORT INFORMATION

		<b>ADR/RID / IMDG / IATA</b>
14.1	UN number	UN 1133
14.2	UN proper shipping name	ADHESIVES containing flammable liquid
14.3	Transport hazard class(es)	3
14.4	Packing group	II
14.5	Environmental hazards	Not classified as a Marine Pollutant/ Environmentally hazardous substance
14.6	Special precautions for user	See Section: 2
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.
14.8	Additional Information	None.

## 15. SECTION 15: REGULATORY INFORMATION

15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture	
15.1.1	National regulations	
	OSHA Occupational Safety and Health Standards	None.
15.1.2	European regulations	
	Substance(s) of Very High Concern (SVHCs)	None
	Authorisations and/or Restrictions On Use	None
	Wassergefährdungsklasse (Germany)	Water hazard class: 1
15.2	Chemical Safety Assessment	Not available.

## 16. SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

**References:** Existing Safety Data Sheet (SDS), Harmonised Classification(s) for Tetrahydrofuran (CAS# 109-99-9), Existing ECHA registration(s) for Tetrahydrofuran (CAS# 109-99-9) and the Classification and Labelling Inventory for Formaldehyde, polymer with 2-(chloromethyl)oxirane and 4,4'-(1-methylethylidene)bis[phenol] (Epon Resin SU-8) (CAS# 28906-96-9).

GHS Classification of the substance or mixture	Classification Procedure
Flam. Liq. 2; H225	Flash Point Test Result/ Boiling Point (°C)
Acute Tox. 4; H302	Acute Toxicity Estimate (ATE) Calculation.
Skin Sens. 1; H317	Threshold Calculation
Eye Irrit. 2; H319	Threshold Calculation
STOT SE 3; H335	Threshold Calculation
Carc. 2; H351	Threshold Calculation
EUH019	Harmonised Classification

# SAFETY DATA SHEET

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1272/2008 (CLP) & 2015/830

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## LEGEND

LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration
PBT	PBT: Persistent, Bioaccumulative and Toxic
vPvB	very Persistent and very Bioaccumulative
NTP	National Toxicology Program
IARC	International Agency for Research on Cancer
OSHA	The Occupational Safety & Health Administration
NIOSH	National Institute for Occupational Safety and Health

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

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## Annex to the extended Safety Data Sheet (eSDS)

No information available.