



## Safety Data Sheet according to (EC) No 1907/2006

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SDS No. : 173122  
V004.3

LOCTITE 407

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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

LOCTITE 407

#### Contains:

Ethyl 2-cyanoacrylate

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use:

Adhesive

#### 1.3. Details of the supplier of the safety data sheet

Henkel Ltd  
Wood Lane End  
HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 1442 278000

Fax-no.: +44 1442 278071

ua-productsafety.uk@uk.henkel.com

#### 1.4. Emergency telephone number

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (CLP):

Skin irritation	Category 2
H315 Causes skin irritation.	
Serious eye irritation	Category 2
H319 Causes serious eye irritation.	
Specific target organ toxicity - single exposure	Category 3
H335 May cause respiratory irritation.	
Target organ: respiratory tract irritation	

#### 2.2. Label elements

##### Label elements (CLP):

##### Hazard pictogram:



<b>Signal word:</b>	Warning
<b>Hazard statement:</b>	H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation.
<b>Supplemental information</b>	EUH202 Cyanoacrylate. Danger. Bonds skin and eyes in seconds. Keep out of the reach of children. Contains Phthalic anhydride. May produce an allergic reaction.
<b>Precautionary statement: Prevention</b>	P261 Avoid breathing vapours. P280 Wear protective gloves/eye protection.
<b>Precautionary statement: Response</b>	P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention.
<b>Precautionary statement: Disposal</b>	P501 Dispose of waste and residues in accordance with local authority requirements.

**2.3. Other hazards**

None if used properly.

**SECTION 3: Composition/information on ingredients****3.2. Mixtures****General chemical description:**

Cyanoacrylate Adhesive

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Ethyl 2-cyanoacrylate 7085-85-0	230-391-5 01-2119527766-29	50- 100 %	Eye Irrit. 2 H319 STOT SE 3 H335 Skin Irrit. 2 H315
Phthalic anhydride 85-44-9	201-607-5 01-2119457017-41	0,1- < 1 %	Acute Tox. 4; Oral H302 STOT SE 3 H335 Skin Irrit. 2 H315 Eye Dam. 1 H318 Resp. Sens. 1 H334 Skin Sens. 1 H317
Hydroquinone 123-31-9	204-617-8 01-2119524016-51	0,01- < 0,1 %	Aquatic Acute 1 H400 Aquatic Chronic 1 H410 Carc. 2 H351 Muta. 2 H341 Acute Tox. 4; Oral H302 Eye Dam. 1 H318 Skin Sens. 1 H317 M factor: 10

For full text of the H - statements and other abbreviations see section 16 "Other information".  
Substances without classification may have community workplace exposure limits available.

**SECTION 4: First aid measures****4.1. Description of first aid measures****Inhalation:**

Move to fresh air, consult doctor if complaint persists.

**Skin contact:**

Do not pull bonded skin apart. It may be gently peeled apart using a blunt object such as a spoon, preferably after soaking in warm soapy water.

Cyanoacrylates give off heat on solidification. In rare cases a large drop will generate enough heat to cause a burn.

Burns should be treated normally after the adhesive has been removed from the skin.

If lips are accidentally stuck together apply warm water to the lips and encourage maximum wetting and pressure from saliva inside the mouth.

Peel or roll lips apart. Do not try to pull the lips apart with direct opposing action.

**Eye contact:**

If the eye is bonded closed, release eyelashes with warm water by covering with wet pad.

Cyanoacrylate will bond to eye protein and will cause periods of weeping which will help to debond the adhesive.

Keep eye covered until debonding is complete, usually within 1-3 days.

Do not force eye open. Medical advice should be sought in case solid particles of cyanoacrylate trapped behind the eyelid cause any abrasive damage.

**Ingestion:**

Ensure that breathing passages are not obstructed. The product will polymerise immediately in the mouth making it almost impossible to swallow. Saliva will slowly separate the solidified product from the mouth (several hours).

**4.2. Most important symptoms and effects, both acute and delayed**

EYE: Irritation, conjunctivitis.

SKIN: Redness, inflammation.

RESPIRATORY: Irritation, coughing, shortness of breath, chest tightness.

**4.3. Indication of any immediate medical attention and special treatment needed**

See section: Description of first aid measures

## SECTION 5: Firefighting measures

**5.1. Extinguishing media**

**Suitable extinguishing media:**

Foam, extinguishing powder, carbon dioxide.

Fine water spray

**Extinguishing media which must not be used for safety reasons:**

High pressure waterjet

**5.2. Special hazards arising from the substance or mixture**

In the event of a fire, carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) can be released.

**5.3. Advice for firefighters**

Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA).

## SECTION 6: Accidental release measures

**6.1. Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation.

**6.2. Environmental precautions**

Do not let product enter drains.

**6.3. Methods and material for containment and cleaning up**

Do not use cloths for mopping up. Flood with water to complete polymerization and scrape off the floor. Cured material can be disposed of as non-hazardous waste.

**6.4. Reference to other sections**

See advice in section 8

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling**

Ventilation (low level) is recommended when using large volumes

Use of dispensing equipment is recommended to minimise the risk of skin or eye contact

**Hygiene measures:**

Wash hands before work breaks and after finishing work.

Do not eat, drink or smoke while working.

Good industrial hygiene practices should be observed.

**7.2. Conditions for safe storage, including any incompatibilities**

For optimum shelf life store in original containers under refrigerated conditions at 2 - 8°C (35.6 - 46.4 °F)

**7.3. Specific end use(s)**

Adhesive

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****Occupational Exposure Limits**Valid for  
Great Britain

<b>Ingredient [Regulated substance]</b>	<b>ppm</b>	<b>mg/m<sup>3</sup></b>	<b>Value type</b>	<b>Short term exposure limit category / Remarks</b>	<b>Regulatory list</b>
Ethyl 2-cyanoacrylate 7085-85-0 [ETHYL CYANOACRYLATE]	0,3	1,5	Short Term Exposure Limit (STEL):		EH40 WEL
Phthalic anhydride 85-44-9 [PHTHALIC ANHYDRIDE]		12	Short Term Exposure Limit (STEL):		EH40 WEL
Phthalic anhydride 85-44-9 [PHTHALIC ANHYDRIDE]		4	Time Weighted Average (TWA):		EH40 WEL
Hydroquinone 123-31-9 [HYDROQUINONE]		0,5	Time Weighted Average (TWA):		EH40 WEL

**Predicted No-Effect Concentration (PNEC):**

<b>Name on list</b>	<b>Environmental Compartment</b>	<b>Exposure period</b>	<b>Value</b>				<b>Remarks</b>
			<b>mg/l</b>	<b>ppm</b>	<b>mg/kg</b>	<b>others</b>	
Phthalic anhydride 85-44-9	soil				0,173 mg/kg		
Phthalic anhydride 85-44-9	STP					10 mg/L	
Phthalic anhydride 85-44-9	sediment (freshwater)				3,8 mg/kg		
Phthalic anhydride 85-44-9	sediment (marine water)				0,38 mg/kg		
Phthalic anhydride 85-44-9	aqua (marine water)					0,1 mg/L	
Phthalic anhydride 85-44-9	aqua (intermittent releases)					5,6 mg/L	
Phthalic anhydride 85-44-9	aqua (freshwater)					1 mg/L	
Hydroquinone 123-31-9	aqua (freshwater)					0,114 µg/L	
Hydroquinone 123-31-9	aqua (marine water)					0,0114 µg/L	
Hydroquinone 123-31-9	sediment (freshwater)					0,98 µg/kg	
Hydroquinone 123-31-9	sediment (marine water)					0,097 µg/kg	
Hydroquinone 123-31-9	aqua (intermittent releases)					0,00134 mg/L	
Hydroquinone 123-31-9	soil					0,129 µg/kg	
Hydroquinone 123-31-9	STP					0,71 mg/L	

**Derived No-Effect Level (DNEL):**

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Ethyl 2-cyanoacrylate 7085-85-0	Workers	Inhalation	Long term exposure - local effects		9,25 mg/m <sup>3</sup>	
Ethyl 2-cyanoacrylate 7085-85-0	Workers	Inhalation	Long term exposure - systemic effects		9,25 mg/m <sup>3</sup>	
Ethyl 2-cyanoacrylate 7085-85-0	general population	Inhalation	Long term exposure - local effects		9,25 mg/m <sup>3</sup>	
Ethyl 2-cyanoacrylate 7085-85-0	general population	Inhalation	Long term exposure - systemic effects		9,25 mg/m <sup>3</sup>	
Phthalic anhydride 85-44-9	Workers	inhalation	Long term exposure - systemic effects		32,2 mg/m <sup>3</sup>	
Phthalic anhydride 85-44-9	Workers	Dermal	Long term exposure - systemic effects		10 mg/kg bw/day	
Phthalic anhydride 85-44-9	general population	inhalation	Long term exposure - systemic effects		8,6 mg/m <sup>3</sup>	
Phthalic anhydride 85-44-9	general population	Dermal	Long term exposure - systemic effects		5 mg/kg bw/day	
Phthalic anhydride 85-44-9	general population	oral	Long term exposure - systemic effects		5 mg/kg bw/day	
Hydroquinone 123-31-9	Workers	Dermal	Long term exposure - systemic effects		128 mg/kg bw/day	
Hydroquinone 123-31-9	Workers	Inhalation	Long term exposure - systemic effects		7 mg/m <sup>3</sup>	
Hydroquinone 123-31-9	Workers	Inhalation	Long term exposure - local effects		1 mg/m <sup>3</sup>	
Hydroquinone 123-31-9	general population	Dermal	Long term exposure - systemic effects		64 mg/kg bw/day	
Hydroquinone 123-31-9	general population	Inhalation	Long term exposure - systemic effects		1,74 mg/m <sup>3</sup>	
Hydroquinone 123-31-9	general population	Inhalation	Long term exposure - local effects		0,5 mg/m <sup>3</sup>	

**Biological Exposure Indices:**

None

**8.2. Exposure controls:**

Engineering controls:

Ensure good ventilation/extraction.

Respiratory protection:

Ensure adequate ventilation.

An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area

Filter type: A

**Hand protection:**

The use of chemical resistant gloves such as Nitrile is recommended.

Polyethylene or polypropylene gloves are recommended when using large volumes.

Do not use PVC, rubber or nylon gloves.

Please note that in practice the working life of chemical resistant gloves may be considerably reduced as a result of many influencing factors (e.g. temperature). Suitable risk assessment should be carried out by the end user. If signs of wear and tear are noticed then the gloves should be replaced.

**Eye protection:**

Wear protective glasses.

**Skin protection:**

Wear suitable protective clothing.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Appearance	liquid colourless
Odor	irritating
Odour threshold	No data available / Not applicable
pH	No data available / Not applicable
Initial boiling point	> 149 °C (> 300.2 °F)
Flash point	80 - 93,4 °C (176 - 200.12 °F)
Decomposition temperature	No data available / Not applicable
Vapour pressure (25,0 °C (77 °F))	0,6600000 mbar
Vapour pressure (50 °C (122 °F))	< 700 mbar
Density ( )	1,0700 g/cm <sup>3</sup>
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Polymerises in presence of water.
Solubility (qualitative) (Solvent: Acetone)	Miscible
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	No data available / Not applicable
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable
Vapor density	No data available / Not applicable
Oxidising properties	No data available / Not applicable

**9.2. Other information**

No data available / Not applicable

**SECTION 10: Stability and reactivity****10.1. Reactivity**

Rapid exothermic polymerization will occur in the presence of water, amines, alkalis and alcohols.

**10.2. Chemical stability**

Stable under recommended storage conditions.

**10.3. Possibility of hazardous reactions**

See section reactivity

**10.4. Conditions to avoid**

No decomposition if used according to specifications.

**10.5. Incompatible materials**

See section reactivity

**10.6. Hazardous decomposition products**

None known.

**SECTION 11: Toxicological information****11.1. Information on toxicological effects****General toxicological information:**

The mixture is classified based on the available hazard information for the ingredients as defined in the classification criteria for mixtures for each hazard class or differentiation in Annex I to Regulation 1272/2008/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**STOT-single exposure:**

May cause respiratory irritation.

**Oral toxicity:**

Cyanoacrylates are considered to have relatively low toxicity. Acute oral LD50 is >5000mg/kg (rat). It is almost impossible to swallow as it rapidly polymerises in the mouth.

**Inhalative toxicity:**

Prolonged exposure to high concentrations of vapours may lead to chronic effects in sensitive individuals  
In dry atmosphere with < 50% humidity, vapours may irritate the eyes and respiratory system

**Skin irritation:**

Causes skin irritation.

Bonds skin in seconds. Considered to be of low toxicity: acute dermal LD50 (rabbit)>2000mg/kg

Due to polymerisation at the skin surface allergic reaction is unlikely to occur

**Eye irritation:**

Causes serious eye irritation.

Liquid product will bond eyelids. In a dry atmosphere (RH<50%) vapours may cause irritation and lachrymatory effect

**Sensitizing:**

May cause allergic reaction.

**Acute oral toxicity:**

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Ethyl 2-cyanoacrylate 7085-85-0	LD50	> 5.000 mg/kg	oral		rat	OECD Guideline 401 (Acute Oral Toxicity)
Phthalic anhydride 85-44-9	LD50	1.530 mg/kg	oral		rat	
Hydroquinone 123-31-9	LD50	367 mg/kg	oral		rat	OECD Guideline 401 (Acute Oral Toxicity)

**Acute dermal toxicity:**

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Ethyl 2-cyanoacrylate 7085-85-0	LD50	> 2.000 mg/kg	dermal		rabbit	OECD Guideline 402 (Acute Dermal Toxicity)
Phthalic anhydride 85-44-9	LD50	> 10.000 mg/kg	dermal		rabbit	

**Skin corrosion/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Ethyl 2-cyanoacrylate 7085-85-0	slightly irritating	24 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)



**Serious eye damage/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Ethyl 2-cyanoacrylate 7085-85-0	irritating	72 h	rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Phthalic anhydride 85-44-9	highly irritating		rabbit	

**Respiratory or skin sensitization:**

Hazardous components CAS-No.	Result	Test type	Species	Method
Ethyl 2-cyanoacrylate 7085-85-0	not sensitising		guinea pig	
Phthalic anhydride 85-44-9	sensitising	in vivo	guinea pig	
Phthalic anhydride 85-44-9	sensitising	Mouse local lymphnode assay (LLNA)	mouse	Mouse local lymphnode assay (LLNA)
Hydroquinone 123-31-9	sensitising	Guinea pig maximisation test	guinea pig	

**Germ cell mutagenicity:**

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Ethyl 2-cyanoacrylate 7085-85-0	negative	bacterial reverse mutation assay (e.g Ames test)			OECD Guideline 471 (Bacterial Reverse Mutation Assay)
	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Phthalic anhydride 85-44-9	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		
Hydroquinone 123-31-9	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		EU Method B.13/14 (Mutagenicity)

**Repeated dose toxicity**

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Method
Hydroquinone 123-31-9	NOAEL= $\geq$ 250 mg/kg	oral: gavage	14 days 5 days/week. 12 doses	rat	OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents)
Hydroquinone 123-31-9	LOAEL= $\leq$ 500 mg/kg	oral: gavage	14 days 5 days/week. 12 doses	rat	OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents)

**SECTION 12: Ecological information****General ecological information:**

The mixture is classified based on the available hazard information for the ingredients as defined in the classification criteria for mixtures for each hazard class or differentiation in Annex I to Regulation 1272/2008/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**12.1. Toxicity****Ecotoxicity:**

Do not empty into drains / surface water / ground water.

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Phthalic anhydride 85-44-9	LC50	313 mg/l	Fish	48 h	Leuciscus idus	DIN 38412-15
Phthalic anhydride 85-44-9	EC50	68 mg/l	Algae	72 h	Selenastrum sp.	OECD Guideline 201 (Alga, Growth Inhibition Test)
Hydroquinone 123-31-9	LC50	0,638 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Hydroquinone 123-31-9	EC50	0,134 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Hydroquinone 123-31-9	EC50	0,335 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Hydroquinone 123-31-9	NOEC	0,0057 mg/l	chronic Daphnia	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)

**12.2. Persistence and degradability****Persistence and Biodegradability:**

The product is not biodegradable.

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
Ethyl 2-cyanoacrylate 7085-85-0		aerobic	57 %	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
Phthalic anhydride 85-44-9		aerobic	90 %	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
Hydroquinone 123-31-9	readily biodegradable	aerobic	75 - 81 %	EU Method C.4-E (Determination of the "Ready" Biodegradability Closed Bottle Test)

**12.3. Bioaccumulative potential / 12.4. Mobility in soil****Mobility:**

Cured adhesives are immobile.

**Bioaccumulative potential:**

No data available.

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Ethyl 2-cyanoacrylate 7085-85-0	0,776				22 °C	EU Method A.8 (Partition Coefficient)
Phthalic anhydride 85-44-9	1,6					
Hydroquinone 123-31-9	0,59					EU Method A.8 (Partition Coefficient)

**12.5. Results of PBT and vPvB assessment**

Hazardous components CAS-No.	PBT/vPvB
Phthalic anhydride 85-44-9	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Hydroquinone 123-31-9	Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria

**12.6. Other adverse effects**

No data available.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

Product disposal:

Cured adhesive: Dispose of as water insoluble non-toxic solid chemical in authorised landfill or incinerate under controlled conditions.

Dispose of in accordance with local and national regulations.

Contribution of this product to waste is very insignificant in comparison to article in which it is used

Disposal of uncleaned packages:

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Disposal must be made according to official regulations.

Waste code

08 04 09 waste adhesives and sealants containing organic solvents and other dangerous substances

**SECTION 14: Transport information****14.1. UN number**

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	3334

**14.2. UN proper shipping name**

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	Aviation regulated liquid, n.o.s. (Cyanoacrylate ester)

**14.3. Transport hazard class(es)**

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	9

**14.4. Packaging group**

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	III

**14.5. Environmental hazards**

ADR	not applicable
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

**14.6. Special precautions for user**

ADR	not applicable
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RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	Primary packs containing less than 500ml are unregulated by this mode of transport and may be shipped unrestricted.

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

not applicable

## **SECTION 15: Regulatory information**

**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

VOC content < 3,00 %  
(1999/13/EC)

**15.2. Chemical safety assessment**

A chemical safety assessment has been carried out.

## SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335 May cause respiratory irritation.  
H341 Suspected of causing genetic defects.  
H351 Suspected of causing cancer.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

### Further information:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

### Label elements (DPD):

Xi - Irritant



### Risk phrases:

R36/37/38 Irritating to eyes, respiratory system and skin.

### Safety phrases:

S23 Do not breathe vapour.  
S24/25 Avoid contact with skin and eyes.  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

### Additional labeling:

Cyanoacrylate. Danger. Bonds skin and eyes in seconds. Keep out of the reach of children.

Contains Phthalic anhydride. May produce an allergic reaction.

**Relevant changes in this safety data sheet are indicated by vertical lines at the left margin in the body of this document. Corresponding text is displayed in a different color on shadowed fields.**

## Annex - Exposure Scenarios:

Exposure Scenarios for ethyl 2-cyanoacrylate can be downloaded under the following link:  
[http://mysds.henkel.com/mysds/.470833..en.ANNEX\\_DE.15743123.0.DE.pdf](http://mysds.henkel.com/mysds/.470833..en.ANNEX_DE.15743123.0.DE.pdf)  
Alternatively they can be accessed on the internet site [www.mysds.henkel.com](http://www.mysds.henkel.com) by entering number 470833.

**LOCTITE® 407™**

May 2009

**PRODUCT DESCRIPTION**

LOCTITE® 407™ provides the following product characteristics:

<b>Technology</b>	Cyanoacrylate
<b>Chemical Type</b>	Ethyl cyanoacrylate
<b>Appearance (uncured)</b>	Transparent, colorless to straw colored liquid <sup>LMS</sup>
<b>Components</b>	One part - requires no mixing
<b>Viscosity</b>	Low
<b>Cure</b>	Humidity
<b>Application</b>	Bonding
<b>Key Substrates</b>	Rubbers, Plastics and Metals

LOCTITE® 407™ is a general purpose adhesive suitable for applications where heat resistance is required.

**TYPICAL PROPERTIES OF UNCURED MATERIAL**

Specific Gravity @ 25 °C	1.05
Viscosity, Cone & Plate, mPa·s (cP):	
Temperature: 25 °C, Shear Rate: 3,000 s <sup>-1</sup>	20 to 50 <sup>LMS</sup>
Viscosity, Brookfield - LVF, 25 °C, mPa·s (cP):	
Spindle 1, speed 30 rpm,	25 to 55
Vapour Pressure, hPa	≤1
Flash Point - See SDS	

**TYPICAL CURING PERFORMANCE**

Under normal conditions, the atmospheric moisture initiates the curing process. Although full functional strength is developed in a relatively short time, curing continues for at least 24 hours before full chemical/solvent resistance is developed.

**Cure Speed vs. Substrate**

The rate of cure will depend on the substrate used. The table below shows the fixture time achieved on different materials at 22 °C / 50 % relative humidity. This is defined as the time to develop a shear strength of 0.1 N/mm<sup>2</sup>.

Fixture Time, seconds:	
Mild Steel (degreased)	10 to 30
Aluminum (degreased)	5 to 15
Zinc dichromate	30 to 90
Neoprene	≤5
Rubber, nitrile	≤5
ABS	10 to 30
PVC	3 to 10
Polycarbonate	20 to 60
Phenolic	5 to 20

**Cure Speed vs. Bond Gap**

The rate of cure will depend on the bondline gap. Thin bond lines result in high cure speeds, increasing the bond gap will decrease the rate of cure.

**Cure Speed vs. Activator**

Where cure speed is unacceptably long due to large gaps, applying activator to the surface will improve cure speed. However, this can reduce ultimate strength of the bond and therefore testing is recommended to confirm effect.

**TYPICAL PROPERTIES OF CURED MATERIAL**

After 24 hours @ 22 °C

**Physical Properties:**

Coefficient of Thermal Expansion, ISO 11359-2, K <sup>-1</sup>	100×10 <sup>-6</sup>
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.1
Softening Point, DIN EN 1427, °C	165

**Electrical Properties:**

Dielectric Constant / Dissipation Factor, IEC 60250:	
0.1 kHz	2 to 3.3 / <0.02
1 kHz	2 to 3.5 / <0.02
10 kHz	2 to 3.5 / <0.02
Volume Resistivity, IEC 60093, Ω·cm	2×10 <sup>15</sup> to 10×10 <sup>15</sup>
Surface Resistivity, IEC 60093, Ω	10×10 <sup>15</sup> to 80×10 <sup>15</sup>
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	25

**TYPICAL PERFORMANCE OF CURED MATERIAL****Adhesive Properties**

Cured for 24 hours @ 22 °C

Lap Shear Strength, ISO 4587:

Steel (grit blasted)	N/mm <sup>2</sup>	16 to 26
	(psi)	(2,320 to 3,770)
Aluminum	N/mm <sup>2</sup>	12 to 19
	(psi)	(1,740 to 2,755)
Zinc dichromate	N/mm <sup>2</sup>	6 to 13
	(psi)	(870 to 1,885)
ABS	N/mm <sup>2</sup>	6 to 20
	(psi)	(870 to 2,900)
PVC	N/mm <sup>2</sup>	6 to 20
	(psi)	(870 to 2,900)
Polycarbonate	N/mm <sup>2</sup>	5 to 20
	(psi)	(725 to 2,900)
Phenolic	N/mm <sup>2</sup>	5 to 15
	(psi)	(725 to 2,175)
Neoprene	N/mm <sup>2</sup>	5 to 15
	(psi)	(725 to 2,175)
Nitrile	N/mm <sup>2</sup>	5 to 15
	(psi)	(725 to 2,175)

Tensile Strength, ISO 6922:

Steel (grit blasted)	N/mm <sup>2</sup>	12 to 25
	(psi)	(1,740 to 3,625)
Buna-N	N/mm <sup>2</sup>	5 to 15
	(psi)	(725 to 2,175)

"T" Peel Strength, ISO 11339:

Steel (degreased)	N/mm	≤0.5
	(lb/in)	(≤2.8)

Cured for 24 hours @ 22 °C, followed by 48 hours @ 120 °C, tested @ 22 °C

Lap Shear Strength, ISO 4587:

Steel (grit blasted)	N/mm <sup>2</sup>	≥8.0 <sup>LMS</sup>
	(psi)	(≥1,160)

Cured for 30 seconds @ 22 °C

Tensile Strength, ISO 6922:

Buna-N	N/mm <sup>2</sup>	≥4.0 <sup>LMS</sup>
	(psi)	(≥580)

**TYPICAL ENVIRONMENTAL RESISTANCE**

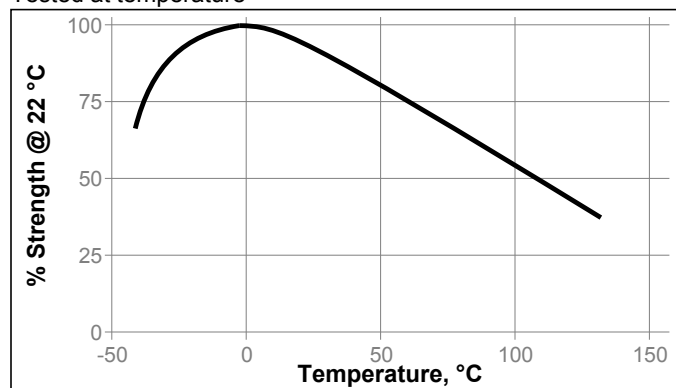
After 1 week @ 22 °C

Lap Shear Strength, ISO 4587:

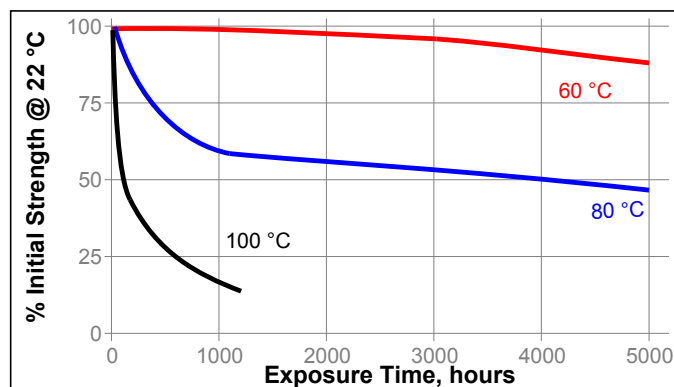
Mild steel (grit blasted)

**Hot Strength**

Tested at temperature

**Heat Aging**

Aged at temperature indicated and tested @ 22 °C

**Chemical/Solvent Resistance**

Aged under conditions indicated and tested @ 22 °C.

Environment	°C	% of initial strength		
		100 h	500 h	1000 h
Motor oil (MIL-L-46152)	40	100	100	100
Gasoline	22	100	100	100
Isopropanol	22	100	100	100
Ethanol	22	100	100	100
Freon TA	22	100	100	100
1,1,1 Trichloroethane	22	100	100	100
Heat/humidity 95% RH	40	100	100	95
Heat/humidity 95% RH on polycarbonate	40	100	100	95

**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. For best performance bond surfaces should be clean and free from grease.
2. This product performs best in thin bond gaps (0.05 mm).
3. Excess adhesive can be dissolved with Loctite cleanup solvents, nitromethane or acetone.

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

LMS dated December 02, 2005. 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: 2 °C to 8 °C. Storage below 2 °C or greater than 8 °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 Technical Service Center or Customer Service Representative.

**Conversions**

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

**Note:**

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.

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## Reference 1.2