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

SDS No. : 175666
V007.0

LOCTITE 362 60EN 5C 0.7MM S known as 60EN 362 5C

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

1.1. Product identifier
LOCTITE 362 60EN 5C 0.7MM S known as 60EN 362 5C

Contains:
Lead
Rosin

1.2. Relevant identified uses of the substance or mixture and uses advised against
Intended use:
Solder Wire

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@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 sensitizer	Category 1
H317 May cause an allergic skin reaction.	
Toxic to reproduction	Category 1A
H360FD May damage fertility. May damage the unborn child.	
Effects on or via lactation	
H362 May cause harm to breast-fed children.	
Specific target organ toxicity - repeated exposure	Category 1
H372 Causes damage to organs (Blood, Kidney, Central Nervous system) through prolonged or repeated exposure (inhalation-dust, oral)	

2.2. Label elements

Label elements (CLP):

Hazard pictogram:	
Signal word:	Danger
Hazard statement:	H360FD May damage fertility. May damage the unborn child. H317 May cause an allergic skin reaction. H362 May cause harm to breast-fed children. H372 Causes damage to organs (Blood, Kidney, Central Nervous system) through prolonged or repeated exposure (inhalation-dust, oral)
Supplemental information	Restricted to professional users.
Precautionary statement: Prevention	P201 Obtain special instructions before use. P261 Avoid breathing fume. P263 Avoid contact during pregnancy and while nursing. P280 Wear protective gloves/protective clothing.
Precautionary statement: Response	P308+P313 IF exposed or concerned: Get medical advice/attention. P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

2.3. Other hazards

Avoid breathing fumes given out during soldering.
After handling solder wash hands with soap and water before eating, drinking or smoking.
Flux fumes may irritate the nose, throat and lungs and may after prolonged/repeated exposure give an allergic reaction (asthma).
Regulations forbid the use of lead solder in any private or public drinking water supply system.
This product contains modified rosin.
Keep out of reach of children.
Do not heat above 500 °C
Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

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

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Tin 7440-31-5	231-141-8 01-2119486474-28	50- 100 %	
Lead 7439-92-1	231-100-4 01-2119513221-59	20- 40 %	Lact. H362 STOT RE 1; Inhalation - dust H372 STOT RE 1; Oral H372 Repr. 1A H360FD
Rosin 8050-09-7	232-475-7 01-2119480418-32	1- < 5 %	Skin Sens. 1 H317

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. If symptoms persist, seek medical advice.

Skin contact:
Rinse with running water and soap.
Obtain medical attention if irritation persists.

Eye contact:
Flush eyes with plenty of water for at least 5 minutes. If irritation persists seek medical attention.

Ingestion:
Do not induce vomiting.
Seek medical advice.

4.2. Most important symptoms and effects, both acute and delayed
Flux fumes may irritate the nose, throat and lungs and may after prolonged/repeated exposure give an allergic reaction (asthma).

SKIN: Rash, Urticaria.

Prolonged or repeated contact may cause skin irritation.

Prolonged or repeated contact may cause eye irritation.

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:
Carbon dioxide, foam, powder
Fine water spray

Extinguishing media which must not be used for safety reasons:
Do not use water on fires where molten metal is present.

5.2. Special hazards arising from the substance or mixture
High temperatures may produce heavy metal dust, fumes or vapours.
The flux medium will give rise to irritating fumes.

5.3. Advice for firefighters
Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

Additional information:
The product itself does not burn. Any fire extinguishing action should be appropriate to the surroundings.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid contact with skin and eyes.
Ensure adequate ventilation.
Wear protective equipment.

6.2. Environmental precautions
Do not empty into drains / surface water / ground water.

6.3. Methods and material for containment and cleaning up
Scrape up spilled material and place in a closed container for disposal.

6.4. Reference to other sections
See advice in section 8

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Extraction is necessary to remove fumes evolved during reflow.
When using do not eat, drink or smoke.
Wash hands before breaks and immediately after handling the product.
Avoid breathing fumes given out during soldering.
See advice in section 8
Do not heat above 500 °C
Avoid skin and eye contact.

Hygiene measures:

Good industrial hygiene practices should be observed.
Do not eat, drink or smoke while working.
After handling solder wash hands with soap and water before eating, drinking or smoking.

7.2. Conditions for safe storage, including any incompatibilities

Ensure good ventilation/extraction.
Store in a cool, dry place.
Refer to Technical Data Sheet

7.3. Specific end use(s)

Solder Wire

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for
Great Britain

Ingredient [Regulated substance]	ppm	mg/m³	Value type	Short term exposure limit category / Remarks	Regulatory list
Lead 7439-92-1 [LEAD AND LEAD COMPOUNDS, OTHER THAN LEAD ALKYLS (AS PB)]		0,15	Time Weighted Average (TWA):		EH40 WEL
Lead 7439-92-1 [INORGANIC LEAD AND ITS COMPOUNDS]		0,15	Time Weighted Average (TWA):		EU_OEL
Lead 7439-92-1 [LEAD AND ITS IONIC COMPOUNDS]			Biological Limit Value:		EU_OEL_II
Rosin 8050-09-7 [ROSIN-BASED SOLDER FLUX FUME]		0,05	Time Weighted Average (TWA):		EH40 WEL
Rosin 8050-09-7 [ROSIN-BASED SOLDER FLUX FUME]		0,15	Short Term Exposure Limit (STEL):		EH40 WEL

Occupational Exposure Limits

Valid for
Ireland

Ingredient [Regulated substance]	ppm	mg/m³	Value type	Short term exposure limit category / Remarks	Regulatory list
Tin 7440-31-5 [TIN, METAL (AS SN)]		2	Time Weighted Average (TWA):	Indicative OELV	IR_OEL
Tin 7440-31-5 [TIN (INORGANIC COMPOUNDS AS SN)]		2	Time Weighted Average (TWA):	Indicative	ECTLV
Lead 7439-92-1 [LEAD AND ITS COMPOUNDS (EXCEPT TETRAETHYL LEAD)]		0,15	Time Weighted Average (TWA):	Binding OELV	IR_OEL
Lead 7439-92-1 [INORGANIC LEAD AND ITS COMPOUNDS]		0,15	Time Weighted Average (TWA):		EU_OEL
Lead 7439-92-1 [LEAD AND ITS IONIC COMPOUNDS]			Biological Limit Value:		EU_OEL_II
Rosin 8050-09-7 [ROSIN CORE SOLDER PYROLYSIS PRODUCTS (AS AIRBORNE TOTAL RESIN ACID)]		0,05	Time Weighted Average (TWA):		IR_OEL
Rosin 8050-09-7 [ROSIN CORE SOLDER PYROLYSIS PRODUCTS (AS AIRBORNE TOTAL RESIN ACID)]		0,15	Short Term Exposure Limit (STEL):		IR_OEL

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
Tin 7440-31-5	aqua (freshwater)						
Tin 7440-31-5	aqua (marine water)						
Tin 7440-31-5	sewage treatment plant (STP)						
Tin 7440-31-5	sediment (freshwater)						
Tin 7440-31-5	sediment (marine water)						
Tin 7440-31-5	Air						
Tin 7440-31-5	soil						
Tin 7440-31-5	Predator						
Lead 7439-92-1	aqua (freshwater)		5,6 µg/l				
Lead 7439-92-1	aqua (marine water)		3,4 µg/l				
Lead 7439-92-1	sediment (freshwater)				174 mg/kg		
Lead 7439-92-1	sediment (marine water)				164 mg/kg		
Lead 7439-92-1	soil				147 mg/kg		
Lead 7439-92-1	oral				10,9 mg/kg		
Lead 7439-92-1	sewage treatment plant (STP)		100 µg/l				
Rosin 8050-09-7	aqua (freshwater)		0,002 mg/l				
Rosin 8050-09-7	aqua (marine water)		0,0002 mg/l				
Rosin 8050-09-7	sediment (freshwater)				0,007 mg/kg		
Rosin 8050-09-7	sediment (marine water)				0,001 mg/kg		
Rosin 8050-09-7	soil				0,0001 mg/kg		
Rosin 8050-09-7	sewage treatment plant (STP)		1000 mg/l				
Rosin 8050-09-7	aqua (intermittent releases)		0,016 mg/l				

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Tin 7440-31-5	General population	dermal	Long term exposure - systemic effects		80 mg/kg	
Tin 7440-31-5	Workers	inhalation	Long term exposure - systemic effects		71 mg/m3	
Tin 7440-31-5	Workers	dermal	Long term exposure - systemic effects		10 mg/kg	
Tin 7440-31-5	General population	inhalation	Long term exposure - systemic effects		17 mg/m3	
Tin 7440-31-5	General population	oral	Long term exposure - systemic effects		5 mg/kg	
Rosin 8050-09-7	Workers	inhalation	Long term exposure - systemic effects		117 mg/m3	
Rosin 8050-09-7	Workers	dermal	Long term exposure - systemic effects		17 mg/kg	
Rosin 8050-09-7	General population	inhalation	Long term exposure - systemic effects		35 mg/m3	
Rosin 8050-09-7	General population	dermal	Long term exposure - systemic effects		10 mg/kg	
Rosin 8050-09-7	General population	oral	Long term exposure - systemic effects		10 mg/kg	

Biological Exposure Indices:
None

8.2. Exposure controls:

Engineering controls:
Extraction is necessary to remove fumes evolved during reflow.
Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction.
Ensure good ventilation/extraction.

Respiratory protection:
In case of aerosol formation, we recommend wearing of appropriate respiratory protection equipment with ABEK P2 filter (EN 14387).
This recommendation should be matched to local conditions.
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

Hand protection:
Chemical-resistant protective gloves (EN 374).
Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)
Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:
Safety glasses with sideshields or chemical safety goggles should be worn if there is a risk of splashing.
Protective eye equipment should conform to EN166.

Skin protection:
Wear suitable protective clothing.
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

Advices to personal protection equipment:

The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions. Personal protective equipment should conform to the relevant EN standard.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	solid solid grey
Odor	None
Odour threshold	No data available / Not applicable
pH	Not applicable
Melting point	183,0 - 188,0 °C (361.4 - 370.4 °F)
Solidification temperature	No data available / Not applicable
Initial boiling point	Not determined
Flash point	Not applicable
Evaporation rate	No data available / Not applicable
Flammability	No data available / Not applicable
Explosive limits	No data available / Not applicable
Vapour pressure	No data available / Not applicable
Relative vapour density:	No data available / Not applicable
Density (20 °C (68 °F))	8,5 g/cm3
Bulk density	No data available / Not applicable
Solubility	No data available / Not applicable
Solubility (qualitative)	Insoluble
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	No data available / Not applicable
Decomposition temperature	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
Oxidising properties	No data available / Not applicable

9.2. Other information

No data available / Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity
Solder alloy will react with concentrated nitric acid to produce toxic fumes of nitrogen oxides.
Reacts with strong oxidants.

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 stored and applied as directed.

10.5. Incompatible materials
See section reactivity.

10.6. Hazardous decomposition products
Thermal decomposition can lead to release of irritating gases and vapors.

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 (EC) No 1272/2008. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

STOT-repeated exposure:
Causes damage to organs (Blood, Kidney, Central Nervous system) through prolonged or repeated exposure (inhalation-dust, oral)

Inhalative toxicity:
Fumes evolved at soldering temperatures will irritate the nose, throat and lungs. Prolonged or repeated exposure to flux fumes may result in sensitisation in sensitive workers.

Dermal toxicity:
This product is considered to have low dermal toxicity.

Skin irritation:
Fumes emitted during soldering may irritate the skin.

Eye irritation:
Fumes emitted during soldering may irritate the eyes.

Sensitizing:
May cause an allergic skin reaction.

Reproductive toxicity:
May damage fertility. May damage the unborn child.
May cause harm to breast-fed children.

Acute oral toxicity:

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Tin 7440-31-5	LD50	> 2.000 mg/kg	oral		rat	OECD Guideline 423 (Acute Oral toxicity)
Rosin 8050-09-7	LD50	2.800 mg/kg	oral		rat	not specified

Acute inhalative toxicity:

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method

Acute dermal toxicity:

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Tin 7440-31-5	LD50	> 2.000 mg/kg	dermal		rat	OECD Guideline 402 (Acute Dermal Toxicity)
Rosin 8050-09-7	LD50	> 2.000 mg/kg	dermal		rat	OECD Guideline 402 (Acute Dermal Toxicity)

Skin corrosion/irritation:

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Tin 7440-31-5	not irritating		rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Rosin 8050-09-7	not irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Serious eye damage/irritation:

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Tin 7440-31-5	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Rosin 8050-09-7	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Germ cell mutagenicity:

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Tin 7440-31-5	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Rosin 8050-09-7	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)

Reproductive toxicity:

Hazardous substances CAS-No.	Result / Classification	Species	Exposure time	Species	Method
Tin 7440-31-5	NOAEL P = > 1.000 mg/kg	oral: gavage	56 days	rat	OECD Guideline 421 (Reproduction / Developmental Toxicity Screening Test)

Repeated dose toxicity

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Method
Tin 7440-31-5	NOAEL=> 1.000 mg/kg	oral: gavage	28 daysdaily	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 (EC) No 1272/2008. 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

12.2. Persistence and degradability

Persistence and Biodegradability:
The product is not biodegradable.

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
Rosin 8050-09-7	readily biodegradable	aerobic	71 %	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)

12.3. Bioaccumulative potential / 12.4. Mobility in soil

Mobility:
The product is insoluble and sinks in water.

Bioaccumulative potential:
No data available.

Bioaccumulative potential:
Octanol/Water distribution coefficient: Not applicable

Hazardous components CAS-No.	LogPow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Rosin 8050-09-7	> 3 - 6,2					OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)

12.5. Results of PBT and vPvB assessment

Hazardous components CAS-No.	PBT/vPvB
Tin 7440-31-5	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Lead 7439-92-1	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Rosin 8050-09-7	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

12.6. Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:
Wherever possible unwanted solder alloy should be recycled for recovery of metal.
Dispose of in accordance with local and national regulations.

Disposal of uncleaned packages:
Dispose of as unused product.

Waste code
06 04 05 - wastes containing other heavy metals
The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.

SECTION 14: Transport information

14.1. UN number

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.2. UN proper shipping name

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.3. Transport hazard class(es)

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.4. Packing group

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.5. Environmental hazards

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.6. Special precautions for user

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.7. Transport in bulk according to Annex II of Marpol 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 (2010/75/EC)	< 3 %

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

National regulations/information (Great Britain):

Remarks	The Health & Safety at Work Act 1974. The Control of Lead at Work Regulations. L132:Control of Lead at Work: Approved Code of Practice and Guidance. The Control of Substances Hazardous to Health Regulations. L5:General Approved Code of Practice to the COSHH Regulations. HS(G)97:A Step by Step Guide to the COSHH Regulations. HS(G)193:COSHH essentials: Easy steps to control chemicals. IND (G)248L:Solder fume and you. IND(G)249L:Controlling health risks from rosin (colophony) based solder fluxes. Employees should be under medical surveillance if the risk assessment made under the Control of Lead at Work Regulations indicates they are likely to be exposed to significant concentrations of lead, or if an Employment Medical Advisor or appointed doctor so certifies. A woman employed on work which exposes her to lead should notify her employer as soon as possible if she becomes pregnant. The Employment Medical Advisor / Appointed Doctor should be informed of the pregnancy. Under the Management of Health and Safety at Work Regulations, employers are required to assess the particular risks to health at work of pregnant workers and workers who have recently given birth or who are breast feeding.

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:

H317 May cause an allergic skin reaction.
H360FD May damage fertility. May damage the unborn child.
H362 May cause harm to breast-fed children.
H372 Causes damage to organs through prolonged or repeated exposure.

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.

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.