



## Safety Data Sheet according to Regulation (EC) No1907/2006

Page 1 of 13

LOCTITE HF 212 0307DAP88.5 BM known as  
SAC0307HF212DAP88.5 500G CN

SDS No. : 487068  
V003.1  
Revision: 20.10.2014  
printing date: 27.01.2015

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

#### 1.1. Product identifier

LOCTITE HF 212 0307DAP88.5 BM known as SAC0307HF212DAP88.5 500G CN

#### Contains:

Rosin

#### 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 sensitizer  
H317 May cause an allergic skin reaction.

Category 1

##### Classification (DPD):

Sensitizing  
R43 May cause sensitisation by skin contact.

**Dangerous for the environment**

**R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.**

#### 2.2. Label elements

##### Label elements (CLP):

##### Hazard pictogram:



##### Signal word:

Warning

**Hazard statement:** H317 May cause an allergic skin reaction.

**Precautionary statement:** P280 Wear protective gloves.  
**Prevention**

**Precautionary statement:** P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
**Response**

**Label elements (DPD):**

|| Xi - Irritant



**Risk phrases:**

|| R43 May cause sensitisation by skin contact.  
|| R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases:**

|| S24 Avoid contact with skin.  
|| S37 Wear suitable gloves.  
|| S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Contains:**

Rosin

**2.3. Other hazards**

Avoid breathing fumes given out during soldering.

Flux fumes may irritate the nose, throat and lungs and may after prolonged/repeated exposure give an allergic reaction (asthma).

After handling solder wash hands with soap and water before eating, drinking or smoking.

Keep out of reach of children.

Self classification: product testing according to Classification, Labelling and Packaging Regulation EC/1272/2008, Annex 1, Part 4.

This product contains modified rosin.

**SECTION 3: Composition/information on ingredients**

**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 %	
Rosin 8050-09-7	232-475-7 01-2119480418-32	>= 1- < 10 %	Skin sensitizer 1 H317
Modified rosin 144413-22-9	434-230-1, 434- 230-1 01-0000018038-71	>= 2,5- < 10 %	Chronic hazards to the aquatic environment 4 H413
Copper 7440-50-8	231-159-6 01-2119480154-42	>= 0,25- < 1 %	Acute toxicity 4; Oral H302 Skin irritation 2 H315 Serious eye irritation 2 H319 Specific target organ toxicity - single exposure 3; Inhalation H335 Acute hazards to the aquatic environment 1 H400 Chronic hazards to the aquatic environment 3 H412
Silver >= 99,9 % Ag in powder (< 1 mm) 7440-22-4	231-131-3	>= 0,25- < 1 %	Acute hazards to the aquatic environment 1 H400 Chronic hazards to the aquatic environment 1 H410 M factor: 1.000 M factor (Chron Aquat Tox): 1.000

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.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Tin 7440-31-5	231-141-8 01-2119486474-28	>= 50 - < 100 %	
Rosin 8050-09-7	232-475-7 01-2119480418-32	>= 1 - < 10 %	R43
Modified rosin 144413-22-9	434-230-1, 434- 230-1 01-0000018038-71	>= 2,5 - < 10 %	R53
Copper 7440-50-8	231-159-6 01-2119480154-42	>= 0,25 - < 1 %	N - Dangerous for the environment; R50/53 Xn - Harmful; R22 Xi - Irritant; R36/37/38
Silver >= 99,9 % Ag in powder (< 1 mm) 7440-22-4	231-131-3	>= 0,25 - < 1 %	N - Dangerous for the environment; R50/53

For full text of the R-Phrases indicated by codes 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:**

Rinse immediately with plenty of running water (for 10 minutes), seek medical attention from a specialist.

**Ingestion:**

Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

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

SKIN: Rash, Urticaria.

Prolonged or repeated contact may cause eye irritation.

Prolonged or repeated skin contact with silver and its salts may cause a blue-gray discoloration of the skin and mucous membranes that is irreversible (Argyria).

**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:**

In case of fire, keep containers cool with water spray.

**SECTION 6: Accidental release measures**

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

Avoid contact with skin and eyes.

**6.2. Environmental precautions**

Do not let product enter drains.

**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

## Hygiene measures:

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

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

Ensure good ventilation/extraction.  
Store only in the original container.  
Refer to Technical Data Sheet

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****Occupational Exposure Limits**

Valid for  
Great Britain

Ingredient	ppm	mg/m <sup>3</sup>	Type	Category	Remarks
ROSIN-BASED SOLDER FLUX FUME 8050-09-7		0,05	Time Weighted Average (TWA):		EH40 WEL
ROSIN-BASED SOLDER FLUX FUME 8050-09-7		0,15	Short Term Exposure Limit (STEL):		EH40 WEL
COPPER, FUME 7440-50-8		0,2	Time Weighted Average (TWA):		EH40 WEL
COPPER, INHALABLE DUSTS AND MISTS (AS CU) 7440-50-8		1	Time Weighted Average (TWA):		EH40 WEL
COPPER, INHALABLE DUSTS AND MISTS (AS CU) 7440-50-8		2	Short Term Exposure Limit (STEL):		EH40 WEL
SILVER (METALLIC) 7440-22-4		0,1	Time Weighted Average (TWA):		EH40 WEL
SILVER, METALLIC 7440-22-4		0,1	Time Weighted Average (TWA):	Indicative	ECLTV

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

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
Rosin 8050-09-7	aqua (freshwater)					0,005 mg/L	
Rosin 8050-09-7	aqua (marine water)					0,0005 mg/L	
Rosin 8050-09-7	sediment (freshwater)				108 mg/kg		
Rosin 8050-09-7	sediment (marine water)				10,8 mg/kg		
Rosin 8050-09-7	soil				21,4 mg/kg		
Rosin 8050-09-7	STP					1000 mg/L	
Copper 7440-50-8	Soil				65 mg/kg		
Copper 7440-50-8	STP		230 µg/l				
Copper 7440-50-8	sediment (marine water)				676 mg/kg		
Copper 7440-50-8	aqua (freshwater)		7,8 µg/l				
Copper 7440-50-8	aqua (marine water)		5,2 µg/l				
Copper 7440-50-8	sediment (freshwater)				87 mg/kg		

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

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Tin 7440-31-5	Workers	Dermal	Acute/short term exposure - systemic effects		133,3 mg/kg	
Tin 7440-31-5	Workers	Inhalation	Acute/short term exposure - systemic effects		11,75 mg/m3	
Tin 7440-31-5	Workers	Dermal	Long term exposure - systemic effects		133,3 mg/kg	
Tin 7440-31-5	Workers	Inhalation	Long term exposure - systemic effects		11,75 mg/m3	
Tin 7440-31-5	general population	Dermal	Acute/short term exposure - systemic effects		80 mg/kg	
Tin 7440-31-5	general population	Inhalation	Acute/short term exposure - systemic effects		3,476 mg/m3	
Tin 7440-31-5	general population	oral	Acute/short term exposure - systemic effects		80 mg/kg	
Tin 7440-31-5	general population	Dermal	Long term exposure - systemic effects		80 mg/kg	
Tin 7440-31-5	general population	Inhalation	Long term exposure - systemic effects		3,476 mg/m3	
Tin 7440-31-5	general population	oral	Long term exposure - systemic effects		80 mg/kg	
Rosin 8050-09-7	Workers	Inhalation	Long term exposure - systemic effects		176,32 mg/m3	
Rosin 8050-09-7	Workers	Dermal	Long term exposure - systemic effects		25 mg/kg bw/day	
Rosin 8050-09-7	general population	Inhalation	Long term exposure - systemic effects		52,174 mg/m3	
Rosin 8050-09-7	general population	Dermal	Long term exposure - systemic effects		15 mg/kg bw/day	
Rosin 8050-09-7	general population	oral	Long term exposure - systemic effects		15 mg/kg bw/day	
Copper 7440-50-8	Workers	Dermal	Acute/short term exposure - systemic effects		273 mg/kg	
Copper 7440-50-8	general population	inhalation	Acute/short term exposure - systemic effects		20 mg/m3	
Copper 7440-50-8	general population	inhalation	Acute/short term exposure - local effects		1 mg/m3	
Copper 7440-50-8	general population	inhalation	Long term exposure - local effects		1 mg/m3	
Copper 7440-50-8	general population	Dermal	Acute/short term exposure - systemic effects		273 mg/kg	
Copper 7440-50-8	Workers	Dermal	Long term exposure - systemic effects		137 mg/kg	
Copper 7440-50-8	general population	Dermal	Long term exposure - systemic effects		137 mg/kg	
Copper 7440-50-8	Workers	inhalation	Acute/short term exposure - systemic effects		20 mg/m3	

Copper 7440-50-8	Workers	inhalation	Long term exposure - local effects	1 mg/m3	
Copper 7440-50-8	Workers	inhalation	Acute/short term exposure - local effects	1 mg/m3	

**Biological Exposure Indices:**

None

**8.2. Exposure controls:**

## Engineering controls:

Ensure adequate ventilation, especially in confined areas.

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.

## Respiratory protection:

Use only in well-ventilated areas.

In case of insufficient ventilation, wear suitable respiratory equipment.

Suitable respiratory protection:

Filter type: A

## Hand protection:

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to &gt; 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to &gt; 480 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  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.

## Skin protection:

Wear suitable protective clothing.

## SECTION 9: Physical and chemical properties

**9.1. Information on basic physical and chemical properties**

Appearance	paste liquid grey
Odor	Mild
Odour threshold	No data available / Not applicable
pH	No data available / Not applicable
Initial boiling point	No data available / Not applicable
Flash point	> 100 °C (> 212 °F)
Decomposition temperature	No data available / Not applicable
Vapour pressure	No data available / Not applicable
Density	5 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)	No data available / Not applicable



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

Solder alloy will react with concentrated nitric acid to produce toxic fumes of nitrogen oxides.

### 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 1272/2008/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

#### Oral toxicity:

Swallowing may cause irritation of mouth, throat and digestive tract, diarrhea and vomiting

#### 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:

Prolonged or repeated skin contact with silver and its salts may cause a blue-gray discoloration of the skin and mucous membranes that is irreversible (Argyria).

#### Skin irritation:

Prolonged or repeated contact may cause skin irritation.

#### Eye irritation:

Solder pastes may be abrasive to the eyes and the fumes are irritating.

#### Sensitizing:

May cause an allergic skin reaction.

**Acute oral toxicity:**

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Rosin 8050-09-7	LD50	2.800 mg/kg	oral		rat	
Copper 7440-50-8	LD50	584 mg/kg	oral		rat	
Silver >= 99,9 % Ag in powder (< 1 mm) 7440-22-4	LD50	> 2.000 mg/kg	oral		rat	OECD Guideline 401 (Acute Oral Toxicity)

**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
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
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
Rosin 8050-09-7	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Modified rosin 144413-22-9	moderately irritating	24 h	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
Rosin 8050-09-7	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Modified rosin 144413-22-9	negative with metabolic activation		with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)

**Repeated dose toxicity**

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Method
Modified rosin 144413-22-9	NOAEL=1.000 mg/kg	oral: gavage	Test duration: 28 days Dosing regime: 7 days/week	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.

Self classification: product testing according to Classification, Labelling and Packaging Regulation EC/1272/2008, Annex 1, Part 4.

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Rosin 8050-09-7	LC50	> 1.000 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Rosin 8050-09-7	EC50	911 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Rosin 8050-09-7	EC50	> 100 mg/l	Algae	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	DIN 38412-09
Modified rosin 144413-22-9	LC50	> 1 mg/l	Fish	24 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Modified rosin 144413-22-9	EC50	> 1 mg/l	Daphnia	24 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Modified rosin 144413-22-9	EC50	> 0,49 mg/l	Algae	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
	NOEC	> 0,49 mg/l	Algae	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)

**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		aerobic	36 - 46 %	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)

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

The product is insoluble and sinks in water.

**Bioaccumulative potential:**

No data available.

Hazardous components CAS-No.	LogKow	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

Rosin 8050-09-7	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Silver >= 99,9 % Ag in powder (< 1 mm) 7440-22-4	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:

Wherever possible unwanted solder pastes should be recycled for recovery of metal.  
Otherwise 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, ADNR, IMDG, IATA-DGR.

#### 14.2. UN proper shipping name

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

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

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

#### 14.4. Packaging group

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

#### 14.5. Environmental hazards

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

#### 14.6. Special precautions for user

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

#### 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 < 5 %  
(1999/13/EC)

### 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. Control of Substances Hazardous to Health Regulations (COSHH), and related guidance, e.g COSHH Essentials. IND (G)248L:Solder fume and you. IND(G)249L:Controlling health risks from rosin (colophony) based solder fluxes.
---------	---

## 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:

- R22 Harmful if swallowed.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- R43 May cause sensitisation by skin contact.
- R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R53 May cause long-term adverse effects in the aquatic environment.
- H302 Harmful if swallowed.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H335 May cause respiratory irritation.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.
- H413 May cause long lasting harmful effects to aquatic life.

### 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.