

Safety data sheet

according to 1907/2006/EC, Article 31

Date Printed 27.02.2019

Version number 1

Revision Date 26.03.2015

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

- **1.1 Product identifier**
- **Trade name: M-Bond 610 Adhesive, Kit Component**
- **Article number: AGG3207AA**
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the preparation:** No further relevant information available.
- **1.3 Details of the supplier of the safety data sheet**
- **Supplier.**
Agar Scientific Ltd
Parsonage Lane
Stansted CM24 8GF
United Kingdom
sales@agarscientific.com
Tel: +44 (0) 1279 813 519
- **Further information obtainable from:** Technical Support
- **1.4 Emergency telephone number:** 24 hours: +44 (0)1856 407333

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS08 health hazard

Carc. 2 H351 Suspected of causing cancer.



GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07

Skin Irrit. 2	H315 Causes skin irritation.
Eye Irrit. 2	H319 Causes serious eye irritation.
Skin Sens. 1	H317 May cause an allergic skin reaction.
STOT SE 3	H335 May cause respiratory irritation.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS02



GHS07



GHS08



GHS09

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Trade name: **M-Bond 610 Adhesive, Kit Component**

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- **Signal word** Danger
- **Hazard-determining components of labelling:**
tetrahydrofuran
Epoxy Novolac
- **Hazard statements**
H225 Highly flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H335 May cause respiratory irritation.
H411 Toxic to aquatic life with long lasting effects.
- **Precautionary statements**
P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P103 Read label before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P241 Use explosion-proof [electrical/ventilating/lighting] equipment.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Additional information:**
EUH018 In use may form flammable/explosive vapour-air mixture.
EUH019 May form explosive peroxides.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.2 Chemical characterisation: Mixtures**
Appearance: Colorless liquid
Immediate effects: May cause severe irritations or burns.

Potential health effects
Primary Routes of entry: Inhalation, eyes, skin and accidental ingestion.

Signs and Symptoms of Overexposure:
Eyes: May cause severe irritation or burns. May cause pain on contact. Vapors may irritate eyes.
Skin: May cause severe irritation or burns. Absorption into the skin may cause dermatitis.
May rarely cause an allergic skin reaction.
Ingestion: May cause headache, nausea, vomiting, dizziness, gastrointestinal irritation.
Inhalation: May cause respiratory irritation and central nervous system depression.
Chronic exposure: Chronic over-exposure may result in kidney and/or liver damage.
Repeated contact may cause drying or flaking of skin. Excessive exposure to solvents may cause respiratory irritation and central nervous system depression. Signs and symptoms of central nervous system depression, in order of increasing exposure, are headache, dizziness, drowsiness, and incoordination. Signs and symptoms of excessive exposure may be nausea and/or vomiting.

Chemical Listed As Carcinogen Or Potential Carcinogen: Not listed in NTP, IARC, or OSHA. See Toxicological Information (Section 11)

Potential environmental effects: See Ecological Information (Section 12)

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- **Description:** Mixture of substances listed below with nonhazardous additions.

Dangerous components:

CAS: 109-99-9 EINECS: 203-726-8	tetrahydrofuran ⚠ Flam. Liq. 2, H225; ⚠ Carc. 2, H351; ⚠ Eye Irrit. 2, H319; STOT SE 3, H335	63.0%
CAS: 28064-14-4	Epoxy Novolac ⚠ Aquatic Chronic 2, H411; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	29.0%
CAS: 78-93-3 EINECS: 201-159-0	Methyl Ethyl Ketone ⚠ Flam. Liq. 2, H225; ⚠ Acute Tox. 4, H302; Eye Irrit. 2, H319; STOT SE 3, H336	8.0%

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- **General information:** Immediately remove any clothing soiled by the product.

After inhalation:

Supply fresh air.

No adverse effects are anticipated from inhalation.

If inhaled, move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

After skin contact:

Wash with water and soap and rinse thoroughly.

In case of contact, flush skin with water while removing contaminated clothing. Wash affected area with soap and water. Wash contaminated clothing before reuse.

After eye contact:

Rinse opened eye under running water. If symptoms persist, consult a doctor.

Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open.

After swallowing:

Call a physician. If swallowed, do NOT induce vomiting unless directed to do so by a physician. If conscious, give large amounts of water.

4.2 Most important symptoms and effects, both acute and delayed

Medical Conditions generally Aggravated by Exposure: Skin disorders, respiratory system disease.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

Alcohol foam, dry chemical, carbon dioxide. Water may be ineffective.

5.2 Special hazards arising from the substance or mixture

Can form explosive gas-air mixtures.

Vapours may flow along surfaces to distant ignition source and flash back. Closed containers exposed to heat may explode. Contact with strong oxidisers may cause fire. May form explosive peroxides, especially when heated.

Hazardous combustion products: Carbon monoxide, carbon dioxide explosive peroxides, phenolics.

5.3 Advice for firefighters

Move containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool.

Protective equipment:

Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in the positive pressure mode.

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Additional information

Flash Point: 6 °F (-14 °C) Method: PMCC

Flammable Limits: LEL: 1.8 UEL: 11.8

Auto-ignition point: 610 °F (320 °C)

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective gloves and glasses.

Keep unnecessary people away; isolate hazard area. Wear self-contained breathing apparatus and full protective clothing. Shut off ignition sources; no flares, smoking or flames in area. Stop leak if you can do so without risk.

6.2 Environmental precautions:

Do not allow product to reach sewage system or any water course.

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

Keep out of storm drains, surface waters and soil.

6.3 Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Use water spray to reduce vapours. Take up with sand or other non-combustible absorbent material and place into container for later disposal. Flush area with water. Dispose of waste according to Local Regulations.

6.4 Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

Bond and ground containers when transferring liquid. Use caution when opening cap. Avoid prolonged exposure to vapors and skin contact. Avoid breathing vapours.

Information about fire - and explosion protection:

The dried resin is combustible, similar to wood. Burning dry resin emits dense, black smoke. As latex, material is not combustible.

Protect against electrostatic charges.

Extinguishing media: Water fog - dried resin only.

7.2 Conditions for safe storage, including any incompatibilities

Keep containers tightly closed. Store in a cool, dry, well ventilated, flammable liquid storage area.

Take precautionary measures against static discharges. Keep away from open flames and spark producing equipment. Keep product out of light.

Storage:

Requirements to be met by storerooms and receptacles: Store in a cool location.

Information about storage in one common storage facility: Not required.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

7.3 Specific end use(s) No further relevant information available.

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SECTION 8: Exposure controls/personal protection

Additional information about design of technical facilities:

Use only with adequate ventilation. A local and general mechanical exhaust is required to keep below TLV.

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

109-99-9 tetrahydrofuran

WEL	Short-term value: 300 mg/m ³ , 100 ppm Long-term value: 150 mg/m ³ , 50 ppm Sk
-----	--

78-93-3 Methyl Ethyl Ketone

WEL	Short-term value: 899 mg/m ³ , 300 ppm Long-term value: 600 mg/m ³ , 200 ppm Sk, BMGV
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Ingredients with biological limit values:

78-93-3 Methyl Ethyl Ketone

BMGV	70 µmol/L Medium: urine Sampling time: post shift Parameter: butan-2-one
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Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.

Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
Respiratory protection required if airborne concentration exceeds TLV. At concentrations up to 1000 ppm, a chemical cartridge respirator with organic vapor cartridge is recommended. Above this level, a self-contained breathing apparatus is recommended.

Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Neoprene gloves recommended.

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· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles

Chemical splash goggles recommended.

· Body protection: Impervious over-clothing as needed.

· Risk management measures Safety shower and eye wash station in local area.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Colour:	Colourless
Odour:	Ether-like
Odour threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/freezing point: Undetermined.

Initial boiling point and boiling range: 66 °C

· Flash point: -14 °C

· Flammability (solid, gas): Not applicable.

· Ignition temperature: 230 °C

· Decomposition temperature: Not determined.

· Auto-ignition temperature: 320 °C

· Explosive properties: In use, may form flammable/explosive vapour-air mixture. May form explosive peroxides.

· Explosion limits:

Lower:	1.8 Vol % 1.8 %
Upper:	11.8 Vol % 11.8 °C

· Vapour pressure at 20 °C: 129 hPa 129 mm Hg

Density:	Not determined.
Relative density	0.9 (H ₂ O=1)
Vapour density	2.4 (air=1)
Evaporation rate	8.0 (butyl acetate=1)

· Solubility in / Miscibility with water: Appreciable (more than 50%)

· Partition coefficient: n-octanol/water: Not determined.

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· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	71.0 %
VOC (EC)	712 g/l
	71.00 %
· Solids content:	
	0.0 %
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability** Stable
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions**
Hazardous Polymerisation: Will not occur by itself, but masses of more than one pound of product plus an aliphatic amine will cause irreversible polymerisation with considerable heat buildup.
- **10.4 Conditions to avoid**
Heat, flame, other sources of ignition, light and air. Avoid subjecting resin to temperatures above 32°C due to presence of volatile methyl ethyl ketone.
- **10.5 Incompatible materials:** Acids, strong oxidising agents, strong bases, strong reducing agents.
- **10.6 Hazardous decomposition products:**
Carbon monoxide, carbon dioxide explosive peroxides, phenolics.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· LD/LC50 values relevant for classification:

109-99-9 tetrahydrofuran

Oral	LD50	2,500 mg/kg (rat)
Inhalative	LC50/4 h	78 mg/l (rat)

28064-14-4 Epoxy Novolac

Oral	LD50	>4,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)

- **Skin corrosion/irritation**
Causes skin irritation.
- **Serious eye damage/irritation**
Causes serious eye irritation.
- **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
- **Additional toxicological information:**
Alternative Results of component toxicity test performed:
Tetrahydrofuran (109-99-9): (IPR, Rat): LD50 = 2900 mg/kg.
Epoxy Novolac (28064-14-4): (Oral, Rabbit): LD50 = >4000 mg/kg.
Methyl Ethyl Ketone (78-93-3): (Skin, Rabbit): LD50 = 13 g/kg.
Human experience: ND
This product does not contain any compounds listed by NTP or IARC or regulated by OSHA as a carcinogen.

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- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity**
Suspected of causing cancer.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure**
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.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxical effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Do not dump into any sewers, on the ground, or into any body of water. Waste characterisations and compliance with applicable laws are the responsibility of the waste generator.
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

- | | |
|---------------------------------------|---|
| · 14.1 UN-Number | |
| · ADR, IMDG, IATA | UN1993 |
| · 14.2 UN proper shipping name | |
| · ADR | 1993 FLAMMABLE LIQUID, N.O.S. (TETRAHYDROFURAN, ETHYL METHYL KETONE (METHYL ETHYL KETONE)), ENVIRONMENTALLY HAZARDOUS |

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· IMDG	FLAMMABLE LIQUID, N.O.S. (TETRAHYDROFURAN, ETHYL METHYL KETONE (METHYL ETHYL KETONE)), MARINE POLLUTANT
· IATA	FLAMMABLE LIQUID, N.O.S. (TETRAHYDROFURAN, ETHYL METHYL KETONE (METHYL ETHYL KETONE))
· 14.3 Transport hazard class(es)	
· ADR, IMDG	
 	
· Class	3 Flammable liquids.
· Label	3
· IATA	
	
· Class	3 Flammable liquids.
· Label	3
· 14.4 Packing group	
· ADR, IMDG, IATA	II
· 14.5 Environmental hazards:	Product contains environmentally hazardous substances: Epoxy Novolac
· Marine pollutant:	Yes Symbol (fish and tree)
· Special marking (ADR):	Symbol (fish and tree)
· 14.6 Special precautions for user	Warning: Flammable liquids.
· Danger code (Kemler):	33
· EMS Number:	F-E, <u>S-E</u>
· Stowage Category	B
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· Transport category	2
· Tunnel restriction code	D/E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

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- **UN "Model Regulation":** UN 1993 FLAMMABLE LIQUID, N.O.S. (TETRAHYDROFURAN, ETHYL METHYL KETONE (METHYL ETHYL KETONE)), 3, II, ENVIRONMENTALLY HAZARDOUS

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **Seveso category**
E2 Hazardous to the Aquatic Environment
P5c FLAMMABLE LIQUIDS
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 200 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge and should assist the user with the safe handling of this material when properly applied. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**
H225 Highly flammable liquid and vapour.
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.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.
H411 Toxic to aquatic life with long lasting effects.
- **Department issuing SDS:** Sales department
- **Contact:**
sales@agarscientific.com
Tel: +44 (0) 1279 813 519
- **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2

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STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

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