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

· **1.1 Product identifier**

· **Trade name: M-Bond 610 Adhesive**

· **Article number:** AGG3207A
· **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

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SECTION 2: Hazards identification

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


flame

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


health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Carc. 2 H351 Suspected of causing cancer.


corrosion

Eye Dam. 1 H318 Causes serious eye damage.


environment

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

Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

· **Additional information:**
Note: 1,2,4,5-Benzenetetracarboxylic Acid (89-05-4): 0.25 mg/m³ Respirable Dust per manufacturer

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· **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 GHS05 GHS07 GHS08 GHS09

· **Signal word** Danger

· **Hazard-determining components of labelling:**
tetrahydrofuran
benzene-1,2:4,5-tetracarboxylic dianhydride
· **Hazard statements**
H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
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 carefully and follow all instructions.
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.
P310	Immediately call a POISON CENTER/doctor.
P321	Specific treatment (see on this label).
P330	Rinse mouth.
P362+P364	Take off contaminated clothing and wash it before reuse.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/ international regulations.

· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

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SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterisation: Mixtures**
Appearance: Colorless to amber liquid
Immediate effects: May cause severe irritation or burns. May cause vomiting, nausea, dizziness, narcosis, respiratory failure, low blood pressure, central nervous system depression, coughing and difficult breathing and/or loss of consciousness.
Primary Routes of entry: Inhalation; accidental skin contact and ingestion.
Signs and Symptoms of Overexposure: Acute over-exposure may induce narcosis and/or loss of consciousness. May be a skin sensitizer to some individuals.
Eyes: May cause severe irritation or burns, tearing, and redness.
Skin: May cause severe irritation or burns, defatting, and dermatitis. Ingestion: May cause headache, nausea, vomiting, dizziness and gastrointestinal irritation.
Inhalation: May cause headache, vomiting, nausea, dizziness, narcosis, respiratory failure, low

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blood pressure, central nervous system depression, coughing and difficult breathing and/or loss of consciousness.
Chronic Exposure: Chronic over-exposure may include kidney and/or liver damage.
Chemical Listed As Carcinogen Or Potential Carcinogen: None listed. See Toxicological Information (Section11)
Potential environmental effects: See Ecological Information (Section 12)

· **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	55-65%
CAS: 28064-14-4	Epoxy Novolac Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	25-32%
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	5-10%

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

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SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:**
Supply fresh air.
No adverse effects are anticipated from inhalation.
Remove to fresh air. If breathing is difficult, administer oxygen. If breathinghas stopped , administer artificial respiration and/or oxygen. Get medical attention if needed.
· **After skin contact:**
Wash with water and soap and rinse thoroughly.
Immediately flush thoroughly while removing contaminated clothing. Wash affected area with soap and water. Wash contaminated clothing before reuse.
· **After eye contact:**
Rinse opened eye for several minutes under running water. Then consult a doctor.
Immediately flush eyes with copious amounts of water for 15 minutes while holding eyelids open.
· **After swallowing:**
Call for a doctor immediately.
If swallowed wash out mouth with water provided person is conscious. Continue to give large quantities of water. Do NOT induce vomiting. Get medical attention.
· **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**
Cool fire-exposed containers.Unusual Fire and Explosion Hazards: Vapors may flow along surfaces to distant ignition sources and flash back. Sealed containers may explode when exposed to high heat. Strong oxidizers can cause ignition.
Hazardous combustion products: Oxides of carbon, explosive peroxides.

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· **5.3 Advice for firefighters**
· **Protective equipment:**
Firefighters should wear proper protective equipment and self-contained breathing apparatus.
· **Additional information**
Flash Point: -14 °C
Flammable Limits: LEL: 1.8. UEL: 11.8

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SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective gloves and glasses.
· **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.
Dispose of waste according to Local Regulations.
· **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Remove all sources of ignition. Wipe up with absorbent material such as sand or vermiculite. Flush affected area with water.
· **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.
Avoid prolonged exposure to vapours and skin contact.
· **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**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Store in a dry, well ventilated,flammable liquid a . Keep containers tightly sealed.
· **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

· **8.1 Control parameters**
· **Additional information about design of technical facilities:**
Ventilation required: Local and general mechanical exhausts are required to keep concentrations below TLV.

· **Ingredients with limit values that require monitoring at the workplace:**	
109-99-9 tetrahydrofuran	
WEL	Short-term value: 300 mg/m³, 100 ppm Long-term value: 150 mg/m³, 50 ppm Sk
78-93-3 Methyl Ethyl Ketone	
WEL	Short-term value: 899 mg/m³, 300 ppm Long-term value: 600 mg/m³, 200 ppm Sk, BMGV

· **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

· **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 skin.
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 cartridge respirator 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 are 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 are recommended.
· **Body protection:** Impervious over-clothing as needed.
· **Risk management measures** Safety shower and eye wash station in local area.

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SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Colour:	Amber coloured
· **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):**	Highly flammable
· **Decomposition temperature:**	Not determined.
· **Auto-ignition temperature:**	No data available
· **Explosive properties:**	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· **Explosion limits:**	
Lower:	1.8 Vol % 1.8 %
Upper:	11.8 Vol %
· **Vapour pressure at 15 °C:**	145 hPa 145 (15ºC) mm Hg
· **Density:**	Not determined.
· **Relative density**	0.9 (H_2O=1)
· **Vapour density**	2.5 (air=1)
· **Evaporation rate at 20 °C**	14.5 (butyl acetate=1) 14.5 (butyl acetate=1)
· **Solubility in / Miscibility with water:**	Complete
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.

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· **Solvent content:**	
Organic solvents:	60-75 %
VOC (EC)	705 g/l 60-75 %
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** No dangerous reactions known.
· **10.4 Conditions to avoid** Heat, sources of ignition.
· **10.5 Incompatible materials:** Strong oxidising agents, acids, bases, alcohol, and water.
· **10.6 Hazardous decomposition products:**
Oxides of carbon, explosive peroxides.
Hazardous Polymerization: Will not occur.

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SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity**
Harmful if swallowed.

· **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)

· **Specific symptoms in biological assay:**
· **Skin corrosion/irritation**
Causes skin irritation.
· **Serious eye damage/irritation**
Causes serious eye damage.
· **Respiratory or skin sensitisation**
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
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.
1,2,4,5-Benzenetetracarboxylic Anhydride (89-32-7): Oral, MUS LD50: 2400 mg/kg.
Human experience: ND
This product does not contain any compounds listed by NTP or IARC or regulated by OSHA as a carcinogen.
· **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.

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· **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.

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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 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralised.
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.
RCRA 40 CFR 261 Classification: Tetrahydrofuran (109-99-9): U213. Federal, State and local laws governing disposal of materials can differ. Ensure proper disposal compliance with proper authorities before disposal.
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

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SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR, IMDG, IATA**	UN1133
· **14.2 UN proper shipping name**	
· **ADR**	1133 ADHESIVES, ENVIRONMENTALLY HAZARDOUS
· **IMDG, IATA**	ADHESIVES

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· **14.3 Transport hazard class(es)**

· **ADR**

· **Class**	3 Flammable liquids.
· **Label**	3

· **IMDG, IATA**

· **Class**	3 Flammable liquids.
· **Label**	3
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	II
· **14.5 Environmental hazards:**	
· **Marine pollutant:**	No
· **Special marking (ADR):**	Symbol (fish and tree)
· **14.6 Special precautions for user**	Warning: Flammable liquids.
· **Hazard identification number (Kemler code):**	33
· **EMS Number:**	F-E,S-D
· **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)**	5L
· **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)**	5L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1133 ADHESIVES, 3, II, ENVIRONMENTALLY HAZARDOUS

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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.

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· **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
· **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 relatif au transport international 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 Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
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
· *** Data compared to the previous version altered.**