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

· 1.1 Product identifier
· Trade name: **Methyl Ethyl Ketone** (MEK) / Butanone
· CAS Number: 78-93-3
· EC number: 201-159-0
· Index number: 606-002-00-3
. UFI: Not applicable for industrial uses - refer to this SDS only.
· Registration number 01-2119457290-43

· 1.2 Relevant identified uses of the substance or mixture and uses advised against
· Solvent Industrial use
Manufacture and Distribution of substance Solvent for coatings
Cleaning agent
Rubber and Polymer processing Formulation and packing of mixtures
· Application of the substance / the mixture Solvent
. **Uses advised against**
.Food contact, additive.
.Not for mixing/formulation by public /consumer. Industrial only.

· 1.3 Details of the supplier of the safety data sheet
.
Supplier:

Aquaflame Systems
Unit 5, Boulton Industrial Estate
Birmingham
B18 5AU
Tel: +44(0) 121-233-1088
Email: sales@aquaflamesystems.com

Further information obtainable from: Contact us at the above office.
· 1.4 Emergency telephone number: Contact us as above (Not 24 hours)

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.

GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **2.2 Label elements**
Labelling according to Regulation (EC) No 1272/2008
The substance is classified and labeled according to the CLP regulation.

Hazard Pictograms

GHS07 GHS02

Signal word Danger

· **Hazard statements**
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

· **Precautionary statements**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243 Take action to prevent static discharges.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+P235 Store in a well-ventilated place. Keep cool.

· **Additional information:**
EUH066 Repeated exposure may cause skin dryness or cracking.

SECTION 2: Hazards identification - cont

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

SECTION 3: Composition/information on ingredients
· 3.1 **Chemical characterization: Substances** · **CAS No. Description**
78-93-3 butanone
REACH Reg No. 01-2119457290-43-XXXX
· **Identification number(s)** · **EC number:** 201-159-0
· **Index number**: 606-002-00-3
SVHC Not listed as a SVHC at the date of this document

SECTION 4: First aid measures
• **4.1 Description of first aid measures**
• **General information:** Immediately remove any clothing soiled by the product. If liquid has completely soaked through garments to skin, wash skin thoroughly with mild soap and water. Treat soaked clothing as hazardous waste and observe all precautions for the substances. Take affected persons out into the fresh air. Do not leave affected persons unattended.

• **After inhalation:** Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation. Seek immediate medical advice.

• **After skin contact:** Immediately wash with water and soap and rinse thoroughly. Remove contaminated clothing. Repeated skin contact may result in irritation and dermatitis. Always wear protective gloves suitable for this product. If skin irritation continues, consult a doctor.

• **After eye contact:** Rinse opened eye for at least 15 minutes under clean running water. Remove contact lenses if possible. Seek immediate medical advice. Continue to irrigate the eye with clean water.
Seek immediate medical advice.

• **After swallowing:** Do NOT induce vomiting; rinse mouth with water, and call for medical help immediately.
Drink plenty of water and provide fresh air. Call a doctor immediately.

After skin contact:
Immediately wash with water and soap and rinse thoroughly. Remove contaminated clothing. Dispose of contaminated clothing as hazardous waste. Observe precautions.
Repeated skin contact may result in irritation and dermatitis. Always wear protective gloves suitable for this product.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Rinse opened eye for at least 15 minutes under clean running water. Remove contact lenses if possible. Seek immediate medical advice.
Continue to irrigate the eye with clean water.
Seek immediate medical advice.
· **After swallowing:**
Do **NOT** induce vomiting; rinse mouth with water, call for medical help immediately.
Drink plenty of water and provide fresh air. Call for a doctor immediately.

· 4.2 Most important symptoms and effects, both acute and delayed.
Headache Dizziness Nausea Unconsciousness

· 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: CO2, powder or water spray. Fight larger fires with aqueous film forming foam (AFFF). Cool containers with water spray.
· For safety reasons unsuitable extinguishing agents: Water with full jet.

· 5.2 Special hazards arising from the substance or mixture
Carbon monoxide (CO), if incomplete combustion.
· 5.3 Advice for firefighters
· **Protective equipment:** Wear self-contained respiratory protective device.

· Additional information
Keep sources of ignition away - flammable liquids and vapours.
Cool endangered receptacles with water spray. Collect contaminated fire-fighting water separately.
It must not enter the sewage system.

Section 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Urgent consideration given to blanket spillage with AFFF Foam to seal liquid/oygen barrier to help prevent
(re)ignition.
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep people at a distance and stay on the windward side.
Keep away from ignition sources.
Wear protective clothing.

· **6.2 Environmental precautions:**
In case of seepage into the ground inform responsible authorities.
Do not allow to enter sewers/ surface or ground water.

• **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
Send for recovery or disposal in suitable receptacles - may need to be UN approved.
Urgent consideration should be given to blanketing spillage with AFFF Foam Spray to seal from sources of ignition as a precautionary measure.

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
Use solvent-proof equipment.
Store in cool, dry place in tightly closed receptacles.
Take note of emission threshold.
Use only in well ventilated areas.
Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
Information about fire - and explosion protection:
Keep ignition sources away - no naked sparks/flames/fires. Ensure electrical equipment is protected to correct
Zone rating (DSEAR Assessed)
Protect against electrostatic charges. Where required - ensure bonding and earthing of containers and process equipment.

Information about fire - and explosion protection:
Static generation and accumulation may be increased when using fine filters,strainers,mixing with powders
and immiscible liquids, high energy/speed mixers. Take extra precautions. Allow static relaxation time for
charges to dissipate before next steps. Do not splash fill.
Refer to IEC/TS 60079-32-1: Electrostatic hazards, guidance.
Refer to NFPA 77: Recommended Prcatices on Static Electricity
Do not spray onto a naked flame, hot surfaces, electrical switchgear, live/battery connected electrics, or near
to any potential sources of ignition.
Flammable gas-air mixtures may form in empty receptacles.
Wear shoes with conductive soles.

7.2 Conditions for safe storage, including any incompatibilities
· Storage:
· Requirements to be met by storerooms and receptacles:
Store in a cool location.
Provide solvent resistant, sealed floor.
Prevent any seepage into the ground.
Provide ventilation for receptacles.
Use only receptacles specifically permitted for this substance/product.
Unsuitable material for receptacle: aluminium.
Unsuitable materials for packaging: Plastics, unless static protected.
Store in area marked with EX signs under Dangerous Substances and Explosive Atmosphere Regs.
Follow HSE guidance for storage of flammable substances.
Flameproof/explosion proof electrical equipment must be used (ATEX Regulations)
Only store in suitable bunded storage areas.
Ensure no sources of ignition are present.
Information about storage in one common storage facility:
Do not store together with alkalis (caustic solutions).
Store away from oxidising agents.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Store receptacle in a well ventilated area.
You are recommended to refer to HSE publications HSG51 - The Storage of Flammable Liquids in
Containers; and HSG140 - The Safe Use and Handling of Flammable Liquids, for more detailed
understanding of the practices to be adhered to.
Composite plastic IBC's risk sudden and total loss of product in event of fire. Ensure bunded areas are
adequate.
Ideally, do not store composite plastic IBC's with other packaged flammable goods.

8.1 Control parameters
· **Additional information about design of technical facilities:** No further data; see item 7.
· **Ingredients with limit values that require monitoring at the workplace:**
78-93-3 butanone
REACH Reg No. 01-2119457290-43-XXXX
WEL Short-term value: 899 mg/m³, 300 ppm
Long-term value: 600 mg/m³, 200 ppm
Sk
· **DNELs**
Skin contact, exposure 1d, value 1161mg/kg
Inhalation, Value 600mg/m3
· **PNECs**
Fresh water, value 55.8mg/L
Soil, value 22.5mg/kg

· **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.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.
Avoid alcohol consumption while working with the product.
· **Respiratory protection:**

Use suitable respiratory protective device in case of insufficient ventilation - when exposure levels are likely to be exceeded.
Filter AX
· **Protection of hands:**

Solvent resistant gloves. Use gloves approved to BS EN 374 : Protective Gloves against Chemicals.
Chemical Resistant Gloves, class 4 or higher for prolonged exposure.
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.
Durability and suitability of glove material is usage dependent. We recommend advice from an experienced glove supplier.
Always wear gloves with clean hands. Contaminated gloves should always be replaced.

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.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be
observed. Ideally a breakthrough time of >480 minutes is recommended, but >240 minutes should be viewed as minimum for continuous contact.
· **Eye protection:**

Tightly sealed goggles or equivalent eyewear.
Approved to EN166 Standard.

Body protection:
Protective work clothing, ideally with anti-static properties - especially if a DSEAR risk assessement warrants this type of clothing.
· **Risk management measures**
Carry out risk assessment under Dangerous Substances and Explosive Atmospheres Regulations (DSEAR),
COSHH.

Section 9: Physical & Chemical properties
· 9.1 Information on basic physical and chemical properties
· General Information
· **Appearance:**

Form:	Liquid
Colour:	Colourless (Aged product may darken depending upon storage conditions and time period)
· Odour:	Recognisable Like ketone

· **Change in condition**

	Melting point/freezing point:	-86.3 °C
	Initial boiling point and boiling range:	79-80.5 °C
·	Flash point:	-4 °C
·	Ignition temperature:	514 °C
·	Explosive properties: Product is not explosive. However, formation of explosive air/ vapour mixtures are possible.	
·	Explosion limits:	
	Lower:	1.8 Vol %
	Upper:	11.5 Vol %
·	Vapour pressure at 20 °C:	105 hPa
·	Density at 20 °C:	0.804-0.807 g/cm³
·	Solubility in / Miscibility with water at 20 °C:	290 g/l
·	Viscosity:	
	Dynamic at 15 °C:	0.423 mPas

· **9.2 Other information** No further relevant information available.

SECTION 10: Stability & reactivity

10.1 Reactivity No further relevant information available.
· 10.2 Chemical stability
· Thermal decomposition / conditions to be avoided:
No decomposition if used according to specifications and industry good practice.
· 10.3 Possibility of hazardous reactions No dangerous reactions known.
· 10.4 Conditions to avoid No further relevant information available.
· 10.5 Incompatible materials: Acids, strong oxidising agents, strong alkalis.
· 10.6 Hazardous decomposition products: Carbon monoxide if incomplete combustion.

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:**
Oral LD50 3300 mg/kg (rat)
Dermal LD50 5000 mg/kg (rabbit)
· **Primary irritant effect:**
· **Skin corrosion/irritation**
Prolonged contact with any solvent can result in skin irritation, not classed as an irritant. Always wear suitable gloves when handling.
· Serious eye damage/irritation Causes serious eye irritation.
· Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
· Additional toxicological information:
· CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
· Germ cell mutagenicity Based on available data, the classification criteria are not met.
· Carcinogenicity Based on available data, the classification criteria are not met.
· Reproductive toxicity Based on available data, the classification criteria are not met.
· STOT-single exposure May cause drowsiness or dizziness.
· 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 13: Exposed conciderations
13.1 Waste treatment methods:· Recommendation
Must not be disposed together with household refuse. Do not allow product to reach sewage system.
· European waste catalogue Refer to our office for EWC codes for disposal of used solvent.
· Uncleaned packaging:
· Recommendation:
Waste Solvent Disposal must be made according to official regulations. Refer to Hazardous Waste Regulations 2005. Requires movement under Consignment note by licensed waste carrier. We may be able provide this service - please contact us for more details.
Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning. Please contact us if you wish to return your used packaging (205litre and IBC's only).
Containers to be scrapped as waste must be cleaned so that no hazardous substances remain, otherwise uncleaned containers containing residue for srap will need to be consigned as hazardous waste as per WM3.

SECTION 14: Transport information

14.1 UN-Number

· ADR, IMDG, IATA	UN1193
· 14.2 UN proper shipping name	
· ADR	1193 ETHYL METHYL KETONE (METHYL ETHYL KETONE)
· IMDG, IATA	ETHYL METHYL KETONE (METHYL ETHYL KETONE)
· 14.3 Transport hazard class(es)	
· **ADR, IMDG, IATA**	

· **Class**	3 Flammable liquids.
· **Label**	3
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	II
· **14.5 Environmental hazards:**	
· **Marine pollutant:**	No
· **14.6 Special precautions for user**	Warning: Flammable liquids.
· **Hazard identification number (Kemler code):**	33
· **EMS Number:**	3-06
· **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
· **UN "Model Regulation":**	UN 1193 ETHYL METHYL KETONE (METHYL ETHYL KETONE), 3, II

Section 15: Regulatory information

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

· Directive 2012/18/EU

· REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3, 40

· National regulations:

· Other regulations, limitations and prohibitive regulations

The Dangerous Substances and Explosive Atmoshere Regulations (DSEAR)

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. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation.
· Relevant phrases None
· Training hints
Make users aware of the contents of this document and train according to use and risks within your operation.
· Department issuing SDS: Product safety department.
· Contact: Sales Office in the first instance.
· Abbreviations and acronyms:
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
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
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3