SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
UK REACH Regulations (SI 2019/758 as amended)

Supercedes date 04-Jan-2018 **Revision date** 19-Sep-2024 **Revision Number** 4

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

1.1. Product identifier

Product Code(s)	719
Safety data sheet number	719
Product Name	MALEIC ANHYDRIDE
Index No	607-096-00-9
EC Number	203-571-6
CAS No	108-31-6
Synonyms	MALEIC ANHYDRIDE SOLID, MALEIC ANHYDRIDE PASTILLES, MALEIC ACID ANHYDRIDE BRIQUETTES, MALEIC ANHYDRIDE THI
Pure substance/mixture	Substance

Contains MALEIC ANHYDRIDE

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use	Industrial application Chemical intermediate Monomer Monomer for special polymers Pesticide Pharmaceutical

1.3. Details of the supplier of the safety data sheet

Supplier
Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
GBR

For further information, please contact

E-mail address	SDS.EMEA@univarsolutions.com
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306

1.4. Emergency telephone number

Emergency Telephone	SGS - +32 (0)3 575 55 55 (24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Acute toxicity - Oral	Category 4 - (H302)
Skin corrosion/irritation	Category 1 - (H314)
Serious eye damage/eye irritation	Category 1 - (H318)
Respiratory sensitisation	Category 1 - (H334)
Skin sensitisation	Category 1A - (H317)
Specific target organ toxicity — repeated exposure	Category 1 - (H372)

2.2. Label elements

Contains MALEIC ANHYDRIDE

Signal word
Danger

Hazard statements
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H372 - Causes damage to the following organs through prolonged or repeated exposure if inhaled: respiratory system [inhalation]
EUH071 - Corrosive to the respiratory tract

Precautionary statements
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P280 - Wear protective gloves/protective clothing and eye/face protection
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 or doctor

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)

MALEIC ANHYDRIDE 108-31-6	90 - 100%	203-571-6 (607-096-00 -9)	-	(EUH071) Acute Tox. 4 (H302) Skin Corr. 1B (H314) Eye Dam. 1 (H318) Resp. Sens. 1 (H334) Skin Sens. 1A (H317) STOT RE 1 (H372)	Skin Sens. 1A :: C>=0.001%	-	-

Full text of H- and EUH-phrases: see section 16

This product does not contain candidate substances of very high concern at a concentration >= 0.1% (UK REACH Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical attention. May cause allergic respiratory reaction.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention. May cause an allergic skin reaction.

Ingestion Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention. May produce an allergic reaction.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. See section 8 for more information.

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

Symptoms Burning sensation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing. Itching. Rashes. Hives.

Inhalation Coughing and/or wheezing. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Causes damage to organs through prolonged or repeated exposure if inhaled. Corrosive to the respiratory tract.

Eyes Causes severe burns. Causes serious eye damage.

Dermal Causes severe burns. Rashes. May cause an allergic skin reaction.

Ingestion Harmful if swallowed

4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors May cause sensitisation in susceptible persons. Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Dry chemical, CO2, alcohol-resistant foam or water spray.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	The product causes burns of eyes, skin and mucous membranes. May cause sensitisation by inhalation. May cause sensitisation by skin contact.
Hazardous combustion products	Carbon oxides.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.
Other information	Refer to protective measures listed in Sections 7 and 8.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Take up mechanically, placing in appropriate containers for disposal.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections	See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Take off contaminated clothing and wash it before reuse.
General hygiene considerations	Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be

allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture.

Packaging materials Keep/store only in original container.

7.3. Specific end use(s)

Specific use(s)
See section 1 for more information.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	United Kingdom
MALEIC ANHYDRIDE 108-31-6	TWA: 1 mg/m³ STEL: 3 mg/m³ Sen+

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers No information available

Chemical name	Oral	Dermal	Inhalation
MALEIC ANHYDRIDE 108-31-6			0.081mg/m³ [4] [6] 0.081mg/m³ [5] [6] 0.2 mg/m³ [4] [7] 0.2 mg/m³ [5] [7]

Derived No Effect Level (DNEL) - General Public No information available.

Predicted No Effect Concentration (PNEC) No information available.

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
MALEIC ANHYDRIDE 108-31-6	0.038 mg/l	0.379 mg/l	0.004 mg/l	0.038 mg/l	

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
MALEIC ANHYDRIDE 108-31-6	0.296 mg/kg	0.03 mg/kg	44.6 mg/l	0.037 mg/kg	

8.2. Exposure controls

Engineering controls No information available.

Personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Use eye protection according to EN 166.

Hand protection Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Gloves must conform to standard EN 374.

Gloves			
Duration of contact	PPE - Glove material	Glove thickness	Break through time
Long term (repeated)	Nitrile rubber	≥ 0.4 mm	> 480 minutes
Long term (repeated)	Butyl rubber	≥ 0.5 mm	> 480 minutes

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
Particulates filter conforming to EN 143.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Pellets
Colour	white
Odour	Aromatic.
Odour threshold	0.25 - 0.32 ppm

Property	**Values**	**Remarks • Method**
Melting point / freezing point	53 - 58 °C	
Initial boiling point and boiling range	200.1 °C	
Flammability		The product is not flammable.
Flammability Limit in Air		No information available.
Upper flammability or explosive limits		
Lower flammability or explosive limits		
Flash point	100.00 - 110.00 °C	
Autoignition temperature	475 °C	
Decomposition temperature	290.00 °C	
pH		pH (concentrated solution): 1.

pH (as aqueous solution)	2.42	solution (1.0 %).
Kinematic viscosity		No information available.
Dynamic viscosity		No information available.
Water solubility	Soluble in water	
Solubility(ies)		No information available.
Partition coefficient	log Pow: -2.61	OECD 107.
Vapour pressure	15.1 Pa	@ 22.0 °C.
Relative density	1.48	20.0 °C.
Bulk density	1480 kg/m³	
Liquid Density	No information available	No information available
Relative vapour density		No information available.
Particle characteristics		No information available.
Particle Size	No information available	
Particle Size Distribution	No information available	
Explosive properties	Dust can form an explosive mixture with air	
Oxidising properties	Does not meet the criteria for classification as oxidising	

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity Stable under recommended storage conditions.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Exposure to air or moisture over prolonged periods. Protect from moisture.

10.5. Incompatible materials

Incompatible materials Strong acids. Strong bases. Strong oxidising agents. Amines. Alcohols.

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

Inhalation May cause allergy or asthma symptoms or breathing difficulties if inhaled. Corrosive to the respiratory tract. Causes damage to organs through prolonged or repeated exposure if

inhaled.

Eye contact Causes severe burns. Causes serious eye damage.

Skin contact Causes severe burns. May cause an allergic skin reaction.

Ingestion Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. Burning. May cause blindness. Coughing and/ or wheezing. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Itching. Rashes. Hives.

Acute toxicity

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
MALEIC ANHYDRIDE	= 1090 mg/kg (Rat)	= 2620 mg/kg (Rabbit)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Causes severe skin burns and eye damage.

MALEIC ANHYDRIDE (108-31-6)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 404: Acute Dermal Irritation/Corrosion	Rabbit	Dermal			Causes skin irritation

Serious eye damage/eye irritation Causes eye burns.

MALEIC ANHYDRIDE (108-31-6)

Method	Species	Exposure route	Effective dose	Exposure time	Results
	Rabbit	eye			Corrosive

Respiratory or skin sensitisation May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

MALEIC ANHYDRIDE (108-31-6)

Method	Species	Exposure route	Results
	human data	Inhalation	Sensitising
OECD Test No. 406: Skin Sensitisation	Guinea pig	Dermal	Sensitising

Germ cell mutagenicity No information available.

Component Information
MALEIC ANHYDRIDE (108-31-6)

Method	Species	Results
	in vivo	Not mutagenic
	in vitro	In vitro genetic toxicity studies were negative in some cases and positive in other cases.

Carcinogenicity No information available.

Reproductive toxicity No information available.

MALEIC ANHYDRIDE (108-31-6)

Method	Species	Results
	Rat	NOAEL 55 mg/kg/day Negative
	Rat	NOAEL 55 mg/kg/day Negative
	Rat	NOAEL 140 mg/kg/day Negative

STOT - single exposure No information available.

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure.

H372 - Causes damage to the following organs through prolonged or repeated exposure if inhaled: respiratory system [inhalation].

Component Information
MALEIC ANHYDRIDE (108-31-6)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Causes damage to organs through prolonged or repeated exposure

Aspiration hazard No information available.

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Not considered to be harmful to aquatic life.

12.2. Persistence and degradability

Persistence and degradability Readily biodegradable.

MALEIC ANHYDRIDE (108-31-6)

Method	Exposure time	Value	Results
OECD Test No. 301E: Ready Biodegradability: Modified OECD Screening Test (TG 301 E)	7 days	98% Biodegradation	Readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
MALEIC ANHYDRIDE	-2.61

12.4. Mobility in soil

Mobility in soil Soluble in water.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

Chemical name	PBT and vPvB assessment
MALEIC ANHYDRIDE	The substance is not PBT / vPvB

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

IATA

14.1 UN number or ID number UN2215
14.2 UN proper shipping name MALEIC ANHYDRIDE
14.3 Transport hazard class(es) 8
14.4 Packing group III
14.5 Environmental hazards No
14.6 Special precautions for user
Special Provisions A803
ERG Code 8L

IMDG

14.1 UN number or ID number UN2215
14.2 UN proper shipping name MALEIC ANHYDRIDE
14.3 Transport hazard class(es) 8
14.4 Packing group III
14.5 Environmental hazards No
14.6 Special precautions for user
Special Provisions None
EmS-No F-A, S-B
14.7 Maritime transport in bulk according to IMO instruments No information available

RID

14.1 UN number or ID number UN2215
14.2 UN proper shipping name MALEIC ANHYDRIDE
14.3 Transport hazard class(es) 8

14.4 Packing group III
14.5 Environmental hazards No
14.6 Special precautions for user
Special Provisions None
Classification code C4

ADR
14.1 UN number or ID number UN2215
14.2 UN proper shipping name MALEIC ANHYDRIDE
14.3 Transport hazard class(es) 8
14.4 Packing group III
14.5 Environmental hazards No
14.6 Special precautions for user
Special Provisions None
Classification code C3
Tunnel restriction code (E)

SECTION 15: Regulatory information

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

National regulations

Authorisations and/or restrictions on use:
This product does not contain substances subject to authorisation (UK REACH - Annex XIV).
This product does not contain substances subject to restriction (UK REACH - Annex XVII).

Persistent Organic Pollutants
Not applicable

Export Notification requirements
Not applicable

Named dangerous substances per COMAH Regulations 2015 (as amended)
Not applicable

Chemical name	Lower-tier requirements (tons)	Upper-tier requirements (tons)
MALEIC ANHYDRIDE - 108-31-6	75	-

The Ozone-Depleting Substances Regulations 2015
Not applicable

The Biocidal Products Regulations 2001 (as amended)
Not applicable

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)
Not applicable

Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)
Not applicable

International Inventories
TSCA Contact supplier for inventory compliance status
DSL/NDSL Contact supplier for inventory compliance status
EINECS/ELINCS Contact supplier for inventory compliance status
ENCS Contact supplier for inventory compliance status
IECSC Contact supplier for inventory compliance status
KECI Contact supplier for inventory compliance status
PICCS Contact supplier for inventory compliance status

AIIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report	A Chemical Safety Assessment has been carried out for this substance

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3
EUH071 - Corrosive to the respiratory tract
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H372 - Causes damage to organs through prolonged or repeated exposure

Legend
SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
+	Sensitisers		

Revision Note ***Indicates updated data since last publication

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended) Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet