

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

1.1 Product identifier

Trade name: Chlorendic Anhydride PE1
REACH registration No.: 01-2119911956-30-0000
CAS-Number: 115-27-5
EC-number: 204-077-3
EU-number: 607-101-00-4

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

- 1 Receipt and storage of raw materials
SU 10; PROC 1, 3, 8b; PC 32; ERC 2
- 2 Blending or dissolving or dispersion
SU 10; PROC 2, 4, 5; PC 32; AC 32; ERC 2
- 3 Filtering and filling
SU 10; PROC 8a, 9; PC 32; ERC 2
- 4 Waste management
SU 23; PROC 3, 8b; ERC 2
- 5 Use in closed batch process (synthesis or formulation)
SU 3; PROC 3; PC 32; ERC 2
- 6 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
SU 3; PROC 5; PC 32
- 7 Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC 8b, 9; PC 32; ERC 2
- 8 Research and development
PROC 15; PC 32; ERC 2

1.3 Details of the supplier of the safety data sheet

Company name: Velsicol Chemical Ireland Limited
Regus House
Street/POB-No.: Hartcourt Centre
Harcourt Road
Postal Code, city: Dublin 2, IRL
Republic of Ireland
WWW: www.velsicol.com
E-mail: sfriedman@velsicol.com
Telephone: 00353 1 477 3143
Telefax: 00353 1 402 9587
Dept. responsible for information:

sfriedman@velsicol.com

1.4 Emergency telephone number

Telephone: +49 51 92 98970 (08:00– 17:00 CET)
or CHEMTREC, Telephone: +1 703 527 3887 (24h; from USA: 1-800-424-9300)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EC regulation 1272/2008 (CLP)

EU SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 and Regulation (EU) No 453/2010 (REACH)

Chlorendic Anhydride PE1 +

Material number C001

Revision date: 2017-06-20

Version: 3

Language: en-GB,IE

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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.
Carc. 2; H351	Suspected of causing cancer.
STOT SE 3; H335	May cause respiratory irritation.
STOT RE 2; H373	May cause damage to organs through prolonged or repeated exposure.
Aqua. Chron. 3; H412	Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (CLP)



Signal word:

Warning

Hazard statements:

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Safety precautions:

P201	Obtain special instructions before use.
P260	Do not breathe dust.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P309+P311	IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Special labelling

Text for labelling: To avoid risks to human health and the environment, comply with the instructions for use.

2.3 Other hazards

No risks worthy of mention.

SECTION 3: Composition / information on ingredients

3.1 Substances

Chemical characterization:	C9 H2 Cl6 O3	
Chemical name:	1,4,5,6,7,7-Hexachlorobicyclo [2,2,1]hept-5-ene-2,3-dicarboxylic anhydride	
CAS-Number:	115-27-5	
EC-number:	204-077-3	
EU-number:	607-101-00-4	
Purity:	>95%	
Hazardous impurities	Chlorobenzene:	<5%
	Chlorendic acid:	<3%
	Maleic anhydride:	<1%

SECTION 4: First aid measures

4.1 Description of first aid measures

- After inhalation: Move victim to fresh air; if necessary, provide artificial respiration or oxygen. Seek medical attention.
- In case of skin contact: Thoroughly wash skin with soap and water. Immediately remove any contaminated clothing, shoes or stockings. If the symptoms persist, seek medical attention.
- After eye contact: Thoroughly flush eyes with water for 15 minutes. Immediately get medical attention.
- After swallowing: IF SWALLOWED: Induce vomiting when the affected person is not unconscious. Seek medical attention.
- Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

- Irritation to eyes.
May cause cancer if swallowed.
Repeated exposure (oral, dermal, inhalation): Injuries of the internal organs (Lung, Stomach, Heart, Liver;).

4.3 Indication of any immediate medical attention and special treatment needed

- Treat symptomatically

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

- Extinguishing is to be in accordance with the surrounding fire.

5.2 Special hazards arising from the substance or mixture

- Fine dust.
Product contains $\leq 5\%$ Chlorobenzene. May represent a fire hazard at sufficient concentrations in presence of ignition sources.

5.3 Advice for firefighters

Special protective equipment for firefighters:

- Advice for fire-fighters: Wear self-contained breathing apparatus, protective clothing and rubber boots.

Additional information:

- Hazchem-Code: -
Non-flammable; No explosion
Do not allow fire water to penetrate into surface or ground water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Use suitable personal protective equipment to protect skin and eyes.
Ventilate affected area.
Avoid generation of dust.

6.2 Environmental precautions

- Do not allow to enter into ground-water, surface water or drains.
In case of entry into waterways, soil or drains, inform the responsible authorities.

6.3 Methods and material for containment and cleaning up

- Stop leak if safe to do so.
Collect in closed and suitable containers for disposal. Dispose of this material and its container to

hazardous or special waste collection point.
Avoid generation of dust.
Remove residual product with water and detergent.

6.4 Reference to other sections

Refer additionally to chapter 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures: Do not handle until all safety precautions have been read and understood. Wear suitable protective clothing, gloves and eye/face protection.

Protective measures at Dust formation: Provide good ventilation. Do not breathe dust/fume/gas/mist/vapours/spray.

Environmental measures: Avoid release to the environment.

Advices on general occupational hygiene: Avoid contact with skin and eyes. Change contaminated clothing. When using do not eat, drink or smoke. Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Store at room temperature in a dry and well ventilated area. Keep container tightly closed. Keep away from food, drink and animal feeding stuffs.

Storage class:

Conditions for safe storage, including any incompatibilities: Protect from humidity and water.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

DNEL/DMEL:

DNEL short-term:

- DNEL Workers, inhalative, local effects: 0,042 mg/m³.
- DNEL Workers, inhalative, Systemic effects: 149 mg/m³.
- DNEL Consumers, dermal, local effects: 0,5 mg/kg bw/d.
- DNEL Consumers, dermal, Systemic effects: 21 mg/kg bw/d.
- DNEL Consumers, oral: 21 mg/kg bw/d.

DNEL Long-term:

- DNEL Consumers, inhalative, local effects: 16,62 mg/m³.
- DNEL Consumers, inhalative, Systemic effects: 12 mg/m³.
- DNEL Consumers, dermal, local effects: 0,28 mg/kg bw/d.
- DNEL Consumers, dermal, Systemic effects: 3 mg/kg bw/d.
- DNEL Consumers, oral: 1,1 mg/kg bw/d.

PNEC:

PNEC water (freshwater): 0,097 mg/L.
PNEC water (marine water): 0,0097 mg/L. PNEC water (intermittent release): 0,97 mg/L.

PNEC sediment (freshwater): 0,097 mg/kg d.w. PNEC sediment (marine water): 0,0097 mg/kg d.w.

PNEC soil: 0,106 mg/kg d.w.

PNEC sewage treatment plant: 16,23 mg/L.

8.2 Exposure controls

Provide adequate ventilation, and local exhaust as needed.

Occupational exposure controls

All information for relevant exposure scenarios including operational conditions and risk management measures are listed in eSDS.

Respiratory protection: Full face mask with canister for organic vapours and particles.

Hand protection: Protective gloves according to EN 374.

Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection: Tightly sealed goggles according to EN 166

Body protection: Dust mask, impenetrable coveralls, shoes and gloves.

General protection and hygiene measures:

Avoid contact with skin and eyes. Change contaminated clothing. When using do not eat, drink or smoke. Wash hands before breaks and after work.

Environmental exposure controls

All information for relevant exposure scenarios including operational conditions and risk management measures are listed in eSDS.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Physical state: Solid, Crystalline Colour: White
Odour:	Strong odour of aromatic hydrocarbons
Odour threshold:	Unknown
Boiling temperature/boiling range:	266,5 - 322 °C
Melting point/melting range:	235 - 239 °C
Flash point/flash point range:	Not applicable
Flammability:	Non-flammable
Autoflammability:	Use as flame retardant.
Explosive properties:	Not explosive
Vapour pressure:	at 25 °C: 0,00268 Pa
Vapour density:	no data available
Density:	at 20 °C: 1,76 g/cm ³ (Pyknometer)
pH value:	Not available
Solubility:	Easily soluble in: Acetone; Soluble in: Methanol, diethyl ether, n-octanol
Water solubility:	at 20 °C: <= 0,0025 g/L
Partition coefficient n-octanol/water:	at 20 °C: 1,76 log Kow (Chlorendic acid) Appreciable bio-accumulation is not to be expected (log Po/w 1-3).
Auto-ignition temperature:	use as flame retardant.
Thermal decomposition:	no data available
Viscosity, dynamic:	no data available
Viscosity, kinematic:	not applicable
Explosive properties:	no data available
Oxidizing characteristics:	no data available

9.2 Other information

Molecular weight: approx. 371 g/mol

Particle size distribution (median value): 0,1% w/w < 10 µm

Evaporation rate: Not applicable
Decomposition temperature: Not available
Oxidising properties: Not oxidising
Vapour density: not available
Surface tension: 72 mN/m (20°C, 450 mg/L aqueous solution). The product hydrolyses quickly in the presence of water to: Chlorendic acid

SECTION 10: Stability and reactivity

10.1 Reactivity

refer to 10.3

10.2 Chemical stability

Product is stable under normal storage conditions.
The product hydrolyses quickly in the presence of water to: Chlorendic acid

10.3 Possibility of hazardous reactions

No dangerous reactions are known.

10.4 Conditions to avoid

Protect from moisture contamination. Protect from heat and direct sunlight.

10.5 Incompatible materials

Oxidizing or reducing agents, strong bases, acids.

10.6 Hazardous decomposition products

No decomposition when used properly.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

LD50 Rat, oral: 2.130-2.562 mg/kg (EU Method B1)
LD50 Rabbit, dermal: 10.000-20.000 mg/kg (OECD 402)
LD50 Rat, inhalative: > 203 mg/L (OECD 433)

Toxicological effects: Acute toxicity (oral): Based on available data, the classification criteria are not met.
Acute toxicity (dermal): Based on available data, the classification criteria are not met.
Acute toxicity (inhalative): Based on available data, the classification criteria are not met.
Skin corrosion/irritation: Skin Irrit. 2; H315 = Causes skin irritation.
Rabbit: mild irritant
Eye damage/irritation: Eye Irrit. 2; H319 = Causes serious eye irritation.
Rabbit: strongly irritant
Sensitisation to the respiratory tract: Lack of data.
Skin sensitisation: Skin Sens. 1; H317 = May cause an allergic skin reaction.
Guinea pig: sensitising (GPMT)
Carcinogenicity: Carc. 2; H351 = Suspected of causing cancer.
Germ cell mutagenicity/Genotoxicity: Based on available data, the classification criteria are not met. OECD 471, 476, 482: negative
Reproductive toxicity: Based on available data, the classification criteria are not met. NOAEL (Effects on fertility): 223 mg/kg bw/d; NOAEL (Teratogenicity): 400 mg/kg bw/d;
Effects on or via lactation: Lack of data.
Specific target organ toxicity (single exposure): STOT SE 3; H335 = May cause respiratory

irritation.

Specific target organ toxicity (repeated exposure): STOT RE 2; H373 = May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard: Lack of data.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Acute (short-term) fish toxicity:

- LC50 *Oncorhynchus mykiss*: 422,7 mg/L/96h (EU Method C. 1)
- LC50 *Lepomis macrochirus* (Bluegill): 422,7 mg/L/96h (EU Method C.1)
- LC50 (freshwater fish): 422.7 mg/L

Acute *Daphnia* toxicity:

- EC50 *Daphnia magna* (Big water flea): 110,7 mg/L/48h (EU Method C.2)

Acute (short-term) toxicity to crustacea:

- EC50/LC50: 110,7 mg/L/48h

Algae toxicity (acute):

- EC50/LC50: 97.2 mg/L/72h (Algal Inhibition test)
- EC10/LC10 or NOEC: 48,4 mg/L/72h (Algal Inhibition test)

Algae toxicity (chronic):

- EC50: >97,2mg/L

Water Hazard Class: 2 = hazardous to water

12.2 Persistence and degradability

Further details: Abiotic degradation:

- Chlorendic Anhydride hydrolyzed with water (Product: Chlorendic acid). -
- Water solubility (Chlorendic acid): 0,499 mg/L.

Biodegradation:

- Chlorendic Anhydride: Not bio-degradable.
- Chlorendic acid: Potentially biologically degradable.

12.3 Bioaccumulative potential

Partition coefficient n-octanol/water: 1,39 log Kow; No accumulation

Partition coefficient n-octanol/water:

at 20 °C: 1,76 log Kow (Chlorendic acid)

Appreciable bio-accumulation is not to be expected (log Po/w 1-3).

12.4 Mobility in soil

Chlorendic Anhydride hydrolyzed with water (Product: Chlorendic acid) log Koc = 0,92 (Chlorendic acid)

12.5 Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6 Other adverse effects

General information: Do not allow to penetrate into soil, waterbodies or drains.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

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Waste key number: 07 01 99 = Wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals: Wastes not otherwise specified
MFSU = manufacture, formulation, supply and use

Recommendation: Ensure all waste water is collected and treated via a waste water treatment plant.
Alternative: Incinerate according to applicable local, state and federal regulations.

Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation.

SECTION 14: Transport information

14.1 UN number

not applicable

14.2 UN proper shipping name

ADR/RID, IMDG, IATA: Not restricted

14.3 Transport hazard class(es)

not applicable

14.4 Packing group

not applicable

14.5 Environmental hazards

Marine pollutant - IMDG: No

14.6 Special precautions for user

No dangerous good in sense of these transport regulations.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No

data available

SECTION 15: Regulatory information

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

National regulations - Great Britain

Hazchem-Code: -

National regulations - EC member states

Labelling of packaging with <= 125mL content

Hazard statements:	H317	May cause an allergic skin reaction.
	H351	Suspected of causing cancer.
	H412	Harmful to aquatic life with long lasting effects.
Safety precautions:	P201	Obtain special instructions before use.
	P280	Wear protective gloves/protective clothing/eye protection/face protection.
	P309+P311	IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

National regulations - USA

TSCA Inventory: listed
TSCA H PVC: not listed
NFPA Hazard Rating:
Health: 3 (Serious)

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Fire: 0 (Minimal)
Reactivity: 0 (Minimal)
HMIS Version III Rating:
Health: 3 (Serious) - Chronic effects
Flammability: 0 (Minimal)
Physical Hazard: 0 (Minimal)
Personal Protection: X = Consult your supervisor

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

Further information

Delete DSD Classification and Labeling in sections 2 and 16, 2017-06-20
Changes in section 1: update REACH registration No. General revision, 2014-08-08
First Version of this format, 2013-02-12

Department issuing data sheet

Contact person: see section 1: Dept. responsible for information

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.