SAFETY DATA SHEET

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

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

1.1. Product identifier

Product name Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

Product number ID 13866

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

Identified uses Distribution of substance, (ES01a)
Use as a fuel, (ES12a, ES12b, ES12c)

1.3. Details of the supplier of the safety data sheet

Supplier

Neste Oyj
Keilaranta 21, Espoo, P.O.B. 95, FIN-00095 NESTE, FINLAND
Tel. +358 10 45811
SDS@neste.com (chemical safety)

1.4. Emergency telephone number

National emergency telephone number +358-9-471 977, +358-9-4711, Poison Information Centre

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Flam. Liq. 1 - H224

Health hazards Skin Irrit. 2 - H315 Muta. 1B - H340 Carc. 1B - H350 Repr. 2 - H361 STOT SE 3 - H336 Asp. Tox. 1 - H304

Environmental hazards Aquatic Chronic 2 - H411

2.2. Label elements

Pictogram

Signal word Danger

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

Hazard statements

H224 Extremely flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 Avoid release to the environment.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P261 Avoid breathing vapours.

Contains

Gasoline

2.3. Other hazards

Other hazards

Volatile., Vapours may form explosive mixtures with air., Risk of soil and ground water contamination.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Gasoline **≥ 78 %**

CAS number: 86290-81-5 EC number: 289-220-8 REACH registration number: 01-2119471335-39-0021

Classification
Flam. Liq. 1 - H224
Skin Irrit. 2 - H315
Muta. 1B - H340
Carc. 1B - H350
Repr. 2 - H361
STOT SE 3 - H336
Asp. Tox. 1 - H304
Aquatic Chronic 2 - H411

2-methoxy-2-methylbutane (TAME) **≤ 22 %**

CAS number: 994-05-8 EC number: 213-611-4 REACH registration number: 01-2119453236-41-0000

Classification
Flam. Liq. 2 - H225
Acute Tox. 4 - H302
STOT SE 3 - H336

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

Ethyl tert-butyl ether (ETBE)		**≤ 22 %**
CAS number: 637-92-3	EC number: 211-309-7	REACH registration number: 01-2119452785-29-0004
Classification Flam. Liq. 2 - H225 STOT SE 3 - H336		
Methyl tert-butyl ether (MTBE)		**≤ 22 %**
CAS number: 1634-04-4	EC number: 216-653-1	REACH registration number: 01-2119452786-27-0003
Classification Flam. Liq. 2 - H225 Skin Irrit. 2 - H315		
Ethanol		**≤ 10 %**
CAS number: 64-17-5	EC number: 200-578-6	REACH registration number: 01-2119457610-43-XXXX
Classification Flam. Liq. 2 - H225		
2-ethoxy-2-methylbutane (TAEE)		**< 10 %**
CAS number: 919-94-8	EC number: 618-804-0	REACH registration number: 01-2119489926-16-0000
Classification Flam. Liq. 2 - H225 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 STOT SE 3 - H336		
methanol		**< 3 %**
CAS number: 67-56-1	EC number: 200-659-6	REACH registration number: 01-2119433307-44-XXXX
Classification Flam. Liq. 2 - H225 Acute Tox. 3 - H301 Acute Tox. 3 - H311 Acute Tox. 3 - H331 STOT SE 1 - H370		

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

Other information Mixture of a petroleum product, oxygenates and additives., Total aromatics at maximum:, 35 %, The gasoline component (86290-81-5) of the product contains:, Benzene (CAS 71-43-2) ≤ 1 %, toluene (CAS 108-88-3) ~ 5 - 15 %, n-hexane (CAS 110-54-3) < 5 %., In the 95 E10 grade total ethers max. 22 voil-%., The 98 E5 grade contains max. 5 vol-% ethanol. In the 98 E5 grade MTBE, ETBE and TAME max. 15 vol-%. Total ethers max. 15 vol-%.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Remove person to fresh air and keep comfortable for breathing. Get medical attention if symptoms are severe or persist.

Ingestion Do not induce vomiting. Get medical attention immediately.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation persists after washing.

Eye contact Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation persists after washing.

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

General information Irritating to skin. May irritate eyes. Vapours in high concentrations are narcotic. May cause nausea, headache, dizziness and intoxication. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

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

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards Extremely flammable liquid and vapour. Risk of explosion. Vapours may accumulate on the floor and in low-lying areas. Containers can burst violently or explode when heated, due to excessive pressure build-up.

Hazardous combustion products Carbon dioxide (CO2). Carbon monoxide (CO).

5.3. Advice for firefighters

Protective actions during firefighting Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid inhalation of vapours and contact with skin and eyes. Wear adequate protective equipment at all operations.

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

For non-emergency personnel Keep upwind to avoid inhalation of gases, vapours, fumes and smoke.

For emergency responders Prevent unauthorized access. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back. Use only in well-ventilated areas. Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharge.

6.2. Environmental precautions

Environmental precautions Avoid release to the environment. Stop leak if safe to do so. Avoid the spillage or runoff entering drains, sewers or watercourses. Contain spillage with sand, earth or other suitable non-combustible material. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air). Risk of soil and ground water contamination.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Immediately start clean-up of the liquid and contaminated soil. Small Spillages: Absorb spillage with sand or other inert absorbent. Pay attention to the fire and health hazards caused by the product.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions The product contains volatile substances which may spread in the atmosphere. Vapours may accumulate on the floor and in low-lying areas. Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharges. Use explosion-proof electrical equipment. All handling should only take place in well-ventilated areas. Try to avoid product volatilization during handling and transferring. Avoid inhalation of vapours and contact with skin and eyes. Use personal protective equipment and/or local ventilation when needed. Do not eat, drink or smoke when using this product. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Flammable liquid storage. Store in accordance with local regulations. Protect from sunlight. Store in a demarcated bunded area to prevent release to drains and/or watercourses. Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfacing the loading and unloading stations. Only store in correctly labelled containers. Use containers made of the following materials: Stainless steel.

7.3. Specific end use(s)

Specific end use(s) Not known.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

2-methoxy-2-methylbutane (TAME)

TAME: 20 ppm (8h), 84 mg/m3 (8h), HTP 2016/FIN.

Ethyl tert-butyl ether (ETBE)

ETBE: 5 ppm (8h), 25 mg/m3 (8 h), HTP 2014/FIN.

Methyl tert-butyl ether (MTBE)

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

MTBE: 50 ppm (8h), 180 mg/m3 (8h), 100 ppm (15 min), 360 mg/m3 (15min), HTP 2016/FIN, EU OELV (EC/2009/161).

Ethanol

Ethanol: 1000 ppm (8h), 1900 mg/m3 (8h), 1300 ppm (15 min), 2500 mg/m3 (15 min), HTP 2016/FIN.

methanol

Methanol: 200 ppm (8h), 270 mg/m3 (8h), 250 ppm (15 min), 330 mg/m3 (15 min), HTP 2016/FIN.
May be absorbed through the skin.

toluene

Toluene: 25 ppm (8h), 81 mg/m3 (8h), 100ppm (15min), 380 mg/m3 (15min), HTP 2016/FIN.
Toluene: 50 ppm (8h), 192 mg/m3 (8h), 100ppm (15min), 384 mg/m3 (15min), EU OELV (EC/2006/15)
May be absorbed through the skin.

n-hexane

n-Hexane: 20 ppm (8h), 72 mg/m3 (8h), HTP 2016/FIN, EU OELV (EC/2006/15).
May be absorbed through the skin.

Benzene

Benzene: 1 ppm (8h), 3,25 mg/m3, VNa 716/2000/FIN (binding limit value).
May be absorbed through the skin.

Biological limit values Toluene in blood 500 nmol/l, BIOL 2011/FIN.

PNEC Not available.

Gasoline (CAS: 86290-81-5)

DNEL
Workers - Inhalation; Short term systemic effects: 1300 mg/m³
Workers - Inhalation; Short term local effects: 1100 mg/m³
Workers - Inhalation; Long term local effects: 840 mg/m³
Consumer - Inhalation; Short term systemic effects: 1200 mg/m³
Consumer - Inhalation; Short term local effects: 640 mg/m³
Consumer - Inhalation; Long term local effects: 180 mg/m³

2-methoxy-2-methylbutane (TAME) (CAS: 994-05-8)

DNEL
Workers - Inhalation; Short term systemic effects: 353,3 mg/m³
Workers - Inhalation; Long term systemic effects: 88,8 mg/m³
Workers - Dermal; Long term systemic effects: 1601 mg/kg/day
Consumer - Inhalation; Short term systemic effects: 212 mg/m³
Consumer - Inhalation; Long term systemic effects: 26,5 mg/m³
Consumer - Dermal; Long term systemic effects: 961 mg/kg/day
Consumer - Dermal; Long term systemic effects: 1 mg/kg/day

PNEC
- Fresh water; 0,51 mg/l
- Marine water; 0,0339 mg/l
- Sediment (Freshwater); 2,99 mg/kg, dw
- Sediment (Marinewater); 0,199 mg/kg, dw
- Soil; 0,265 mg/kg, ww

Ethyl tert-butyl ether (ETBE) (CAS: 637-92-3)

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

DNEL

Workers - Inhalation; Short term systemic effects: 2800 mg/m³
Workers - Inhalation; Long term local effects: 105 mg/m³
Workers - Inhalation; Long term systemic effects: 352 mg/m³
Workers - Dermal; Long term systemic effects: 6767 mg/kg/day
Consumer - Inhalation; Short term systemic effects: 1680 mg/m³
Consumer - Inhalation; Long term local effects: 63 mg/m³
Consumer - Inhalation; Long term systemic effects: 105 mg/m³
Consumer - Dermal; Long term systemic effects: 4060 mg/kg/day
Consumer - Oral; Long term systemic effects: 12,5 mg/kg/day

PNEC

- Fresh water; 0,51 mg/l
- Marine water; 0,017 mg/l
- Sediment (Freshwater); 28,5 mg/kg, dw
- Sediment (Marinewater); 1,45 mg/kg, dw
- Soil; 2,41 mg/kg, dw
- Effluent; 12,5 mg/l

Methyl tert-butyl ether (MTBE) (CAS: 1634-04-4)

DNEL

Workers - Dermal; Long term systemic effects: 5100 mg/kg/day
Workers - Inhalation; Short term local effects: 357 mg/m³
Workers - Inhalation; Long term systemic effects: 178,5 mg/m³
Consumer - Dermal; Long term systemic effects: 3570 mg/kg/day
Consumer - Inhalation; Short term local effects: 214 mg/m³
Consumer - Inhalation; Long term systemic effects: 53,6 mg/m³
Consumer - Oral; Long term systemic effects: 7,1 mg/kg/day

PNEC

- Fresh water; 5,1 mg/l
- Marine water; 0,26 mg/l
- Sediment (Freshwater); 23 mg/kg, dw
- Sediment (Marinewater); 1,17 mg/kg, dw
- Soil; 1,43 mg/kg, ww
- STP; 71 mg/l

Ethanol (CAS: 64-17-5)

DNEL

Workers - Inhalation; Long term systemic effects: 950 mg/m³
Workers - Dermal; Long term systemic effects: 343 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 114 mg/m³
Consumer - Dermal; Long term systemic effects: 206 mg/kg/day
Consumer - Oral; Long term systemic effects: 87 mg/kg/day

PNEC

- Fresh water; 0,96 mg/l
- Marine water; 0,79 mg/l
- Intermittent release; 2,75 mg/l
- Sediment (Freshwater); 3,6 dw, mg/kg
- Sediment (Marinewater); 2,9
- STP; 580 mg/l
- Soil; 0,63 mg/kg, dw
- Secondary poisoning; 0,38 g/kg food

methanol (CAS: 67-56-1)

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

DNEL	Workers - Dermal; Short term systemic effects: 40 mg/kg/day Workers - Inhalation; Short term systemic effects: 260 mg/m³ Consumer - Dermal; Short term systemic effects: 8 mg/kg/day Consumer - Inhalation; Short term systemic effects: 50 mg/m³ Consumer - Oral; Short term systemic effects: 8 mg/kg/day
PNEC	- Fresh water; 154 mg/l - Marine water; 15,4 mg/l - Sediment; 570,4 mg/kg, dw - Soil; 23,5 mg/kg, ww - STP; 100 mg/l

8.2. Exposure controls

Appropriate engineering controls	All handling should only take place in well-ventilated areas. Use personal protective equipment and/or local ventilation when needed. Handle in accordance with good industrial hygiene and safety practice. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).
Eye/face protection	Tight-fitting safety glasses. Face shield when needed.
Hand protection	Wear protective gloves. It is recommended that gloves are made of the following material: Nitrile rubber. The selected gloves should have a breakthrough time of at least 8 hours. Protection class 6. Protective gloves according to standards EN 420 and EN 374. Change protective gloves regularly.
Other skin and body protection	Protective clothing when needed. Wear anti-static protective clothing if there is a risk of ignition from static electricity.
Respiratory protection	Filter device/full mask Gas filter, type AX. Filter device could be used maximum 2 hours at a time. Filter devices must not be used in conditions where the oxygen level is low (< 19 vol.-%). At high concentrations a breathing apparatus must be used (self-contained or fresh air hose breathing apparatus). Filter must be changed often enough. Respirators according standards EN 136 and EN 141.
Environmental exposure controls	Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfacing the loading and unloading stations.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Mobile liquid.
Colour	Clear.
Odour	Hydrocarbons. Ethers.
Odour threshold	-
pH	-
Melting point	< -20°C
Initial boiling point and range	20...210°C
Flash point	< 0°C
Upper/lower flammability or explosive limits	Lower flammable/explosive limit: 1,4 % Upper flammable/explosive limit: 8,1 % (calculated)
Vapour pressure	45...90 kPa @ 38°C

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

Vapour density	> 3 (Air = 1.0)
Relative density	0,72...0,77 @ 15/4°C
Solubility(ies)	Slightly soluble in water. The product contains substances which are water-soluble and may spread in water systems. MTBE: 41.9 g/l, ETBE: 16.4 g/l, TAME: 10.4 g/l, TAEE: 3.9 g/l. Ethanol. Completely soluble in water. Methanol. Completely soluble in water.
Partition coefficient	Hydrocarbons: log Kow: > 3 MTBE log Kow: 1.06, ETBE log Kow: 1.48, TAME log Kow: 1.55, TAEE log Kow: 2.95-3.35. ethanol log Kow: 0.35. methanol log Kow: -0.77.
Auto-ignition temperature	> 280°C Estimated value.
Decomposition Temperature	-
Viscosity	Kinematic viscosity < 1 mm2/s @ 38°C
Explosive properties	Not considered to be explosive.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Other information	Not known.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions No potentially hazardous reactions known.

10.4. Conditions to avoid

Conditions to avoid Keep away from heat, sparks and open flame.

10.5. Incompatible materials

Materials to avoid Oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Does not decompose when used and stored as recommended.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological effects Based on available data the classification criteria are not met.

Acute toxicity - oral

ATE oral (mg/kg) 3,335.0

Acute toxicity - dermal

ATE dermal (mg/kg) 10,344.83

Acute toxicity - inhalation

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

ATE inhalation (gases ppm)	24,137.93
ATE inhalation (vapours mg/l)	103.45
ATE inhalation (dusts/mists mg/l)	17.24

Skin corrosion/irritation

Skin corrosion/irritation	Irritating to skin., The product irritates mucous membranes and may cause abdominal discomfort if swallowed., May cause respiratory irritation.

Serious eye damage/irritation

Serious eye damage/irritation	Based on available data the classification criteria are not met.

Skin sensitisation

Skin sensitisation	Based on available data the classification criteria are not met. (OECD 406, 429, EU B.6, B.43, EPA OTS 798.4100)

Germ cell mutagenicity

Genotoxicity - in vitro	Gasoline (CAS 86290-81-5): May cause genetic defects. (OECD 471, 476)
Genotoxicity - in vivo	(OECD 475, EPA OPPTS 870.5395)

Carcinogenicity

Carcinogenicity	Gasoline (CAS 86290-81-5): May cause cancer. (OECD 451)

Reproductive toxicity

Reproductive toxicity - fertility	Gasoline (CAS 86290-81-5): Suspected of damaging fertility. (OECD 416, 421)
Reproductive toxicity - development	Gasoline (CAS 86290-81-5): Suspected of damaging the unborn child. (OECD 414)

Specific target organ toxicity - single exposure

STOT - single exposure	May cause nausea, headache, dizziness and intoxication. Anaesthetic in high concentrations.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure	Based on available data the classification criteria are not met. (OECD 407, 408, 410, 412, 422, 453, EPA OTS 798.2450, EPA OPPTS 870.3465)

Aspiration hazard

Aspiration hazard	May be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

Gasoline

Acute toxicity - oral

Notes (oral LD_{50})	LD_{50} > 5000 mg/kg, Oral, Rat (OECD 401)

Acute toxicity - dermal

Notes (dermal LD_{50})	LD_{50} > 2000 mg/kg, Dermal, Rabbit (OECD 402)

Acute toxicity - inhalation

Notes (inhalation LC_{50})	LC_{50} > 5610 mg/m³, Inhalation, Rat (OECD 403)

2-methoxy-2-methylbutane (TAME)

Acute toxicity - oral

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

Notes (oral LD_{50})	LD_{50} 1602 - 2417 mg/kg, Oral, Rat (OECD 401)
ATE oral (mg/kg)	500.0
Acute toxicity - dermal	
Notes (dermal LD_{50})	LD_{50} > 2000 mg/kg, Dermal, Rabbit (OECD 402)
Acute toxicity - inhalation	
Notes (inhalation LC_{50})	LC_{50} > 5400 mg/m³, Inhalation, Rat (4h) (OECD 403)

methanol

Acute toxicity - oral	
Notes (oral LD_{50})	LD_{50} 1187 - 2769 mg/kg, Oral, Rat
ATE oral (mg/kg)	100.0
Acute toxicity - dermal	
Notes (dermal LD_{50})	LD_{50} ~ 17100 mg/kg, Dermal, Rabbit
ATE dermal (mg/kg)	300.0
Acute toxicity - inhalation	
Notes (inhalation LC_{50})	LC_{50} 128 000 mg/m³, (4h), Inhalation, Rat

SECTION 12: Ecological Information

12.1. Toxicity

Toxicity Toxic to aquatic life with long lasting effects.

Gasoline

Acute toxicity - fish	LL_{50}, 96 hours: 8,2 mg/l, (EPA 66013-75-009, OECD 203)
Acute toxicity - aquatic invertebrates	EL50, 48 hours: 4,5 mg/l, NOELR, 48 hours: 0,5 mg/l, (OECD 202)
Acute toxicity - aquatic plants	EL50, 96 hours: 3,7 mg/l, Fish NOELR, 72 hours: 0,5 mg/l, Fish (OECD 201)
Chronic toxicity - aquatic invertebrates	EL50, 21 days: 10 mg/l, NOELR, 21 days: 2,6 mg/l, (OECD 211)

12.2. Persistence and degradability

Phototransformation The product contains volatile substances which may spread in the atmosphere. Can be photodegraded in the atmosphere.

Stability (hydrolysis) No significant reaction in water.

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

Biodegradation Gasoline (CAS 86290-81-5):
Inherently biodegradable.
MTBE, ETBE, TAME, TAEE:
Non-rapidly degradable
(OECD 301D).
Ethanol.
Rapidly degradable
(OECD 301F).
Methanol.
Rapidly degradable

Gasoline

Biodegradation Inherently biodegradable.
(OECD 301F, ISO/DIS 14593)

12.3. Bioaccumulative potential

Bioaccumulative potential Possibly bioaccumulative.

Partition coefficient Hydrocarbons: log Kow: > 3 MTBE log Kow: 1.06, ETBE log Kow: 1.48, TAME log Kow: 1.55, TAEE log Kow: 2.95-3.35. ethanol log Kow: 0.35. methanol log Kow: -0.77.

12.4. Mobility in soil

Mobility Volatile. Volatilization is the fastest and most dominant elimination process in surface water and soil. Product can penetrate soil until reaching ground water, where the most soluble components will spread. The product contains substances which are bound to particulate matter and are retained in soil.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Product residues retained in emptied containers can be hazardous. Waste packaging should be collected for reuse or recycling.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID) 1203

14.2. UN proper shipping name

Proper shipping name (ADR/RID) UN 1203, GASOLINE

14.3. Transport hazard class(es)

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

ADR/RID class 3

14.4. Packing group

ADR/RID packing group II

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
MARINE POLLUTANT

14.6. Special precautions for user

Tunnel restriction code (D/E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

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

SECTION 15: Regulatory information

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

EU legislation Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).
Commission Regulation (EU) No 2015/830 of 28 May 2015.
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

SECTION 16: Other information

General information USE AS MOTOR FUEL ONLY.

Key literature references and sources for data Regulations, databases, literature, own research. Concawe Report 10/14: Hazard Classification and Labelling of Petroleum Substances in the EEA - 2014. Chemical Safety Report (Gasoline, MTBE, ETBE, TAME, TAEE, ethanol, methanol, 2010-2017)

Revision comments Updated, sections: Exposure scenarios

Revision date 13/09/2017

Supersedes date 13/05/2016

SDS number 5649

Motor gasoline 95 E10, 98 E5, sulphur free, summer grade, winter grade; Neste Futura 95 E10, 98 E5 (BE95 E10, BE98 E5), BE95E5

Hazard statements in full

H224 Extremely flammable liquid and vapour.
H225 Highly flammable liquid and vapour.
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H311 Toxic in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H336 May cause drowsiness or dizziness.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H370 Causes damage to organs .
H411 Toxic to aquatic life with long lasting effects.

Exposure scenario
Distribution of substance

Identification

Product name	Gasoline (benzene 0 - 1 %)
CAS number	86290-81-5
Version number	2017
Es reference	ES01a (0-1%)

1. Title of exposure scenario

Main title	Distribution of substance
Process scope	Bulk loading (including marine vessel/barge, rail/road car and IBC loading) of substance within closed or contained systems, including incidental exposures during its sampling, storage, unloading, maintenance and associated laboratory activities.

Environment

Environmental release category	ERC4 Industrial use of processing aids in processes and products, not becoming part of articles. ERC5 Industrial use resulting in inclusion into or onto a matrix. ERC6a Industrial use resulting in manufacture of another substance (use of intermediates). ERC6b Industrial use of reactive processing aids. ERC6c Industrial use of monomers for manufacture of thermoplastics. ERC6d Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers. ERC7 Industrial use of substances in closed systems.
SPERC	ESVOC SpERC 1.1b.v1

Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 11 000 000 tonnes/year
Fraction of Regional tonnage used locally: 0.002
Annual site tonnage: 21 000 tonnes
Maximum daily site tonnage: 71 tonnes

Frequency and duration of use

Distribution of substance

Continuous release.
Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.001
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.000001
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0,00001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Risk management measures

Good practice	Common practices vary across sites, thus conservative process release estimates used. Risk from environmental exposure is driven by fresh water.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.1% Removal efficiency (total): 96.1% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 2 600 tonne/day Assumed domestic sewage treatment plant flow (m^3/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	Treat air emission to provide a typical removal efficiency of 90%.
Water	No wastewater treatment required.
Soil	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Distribution of substance

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures

General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
General measures (carcinogens) Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenario; clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.

Risk management measures

General exposures (closed systems)
With sample collection
Handle substance within a closed system.
Sample via a closed loop or other system to avoid exposure.
Wear suitable gloves tested to EN374.
.
General exposures (closed systems)
Outdoor.
Handle substance within a closed system.
.
Process sampling
Sample via a closed loop or other system to avoid exposure.
.
Laboratory activities
Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure.
.
Bulk closed loading and unloading
Ensure material transfers are under containment or extract ventilation.
.
Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
Retain drain-downs in sealed storage pending disposal or for subsequent recycle.
Clear spills immediately.
Wear chemically-resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
.
Storage
Ensure operation is undertaken outdoors.
Store substance within a closed system.

Additional advice

Do not ingest. If swallowed, then seek immediate medical assistance.

3. Exposure estimation (Environment 1)

Assessment method

Used Petrorisk model. (Hydrocarbon Block Method)

Distribution of substance

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0061
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.027

4. Guidance to check compliance with the exposure scenario (Environment 1)

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

3. Exposure estimation (Health 1)

Assessment method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Exposure scenario
Use as a fuel - Industrial

Identification

Product name	Gasoline (benzene 0 - 1 %)
CAS number	86290-81-5
Version number	2017
Es reference	ES12a (0-1%)

1. Title of exposure scenario

Main title	Use as a fuel - Industrial
Process scope	Covers the use as a fuel (or fuel additives and additive components) within closed or contained systems, including incidental exposures during activities associated with its transfer, use, equipment maintenance and handling of waste.

Environment

Environmental release category	ERC7 Industrial use of substances in closed systems.
SPERC	ESVOC SpERC 7.12a.v1

Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC16 Using material as fuel sources, limited exposure to unburned product to be expected.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 940 000 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 940 000 tonnes
Maximum daily site tonnage: 3 100 tonnes

Frequency and duration of use

Continuous release.
Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.05

Use as a fuel - Industrial

Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.00001
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Risk management measures

Good practice	Common practices vary across sites, thus conservative process release estimates used. Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.1% Removal efficiency (total): 96.1% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 5 300 tonne/day Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	Treat air emission to provide a typical removal efficiency of 95%.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 91.1 If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
Soil	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method	This substance is consumed during use and no waste of the substance is generated.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Organisational measures to prevent/limit releases, dispersion and exposure

Use as a fuel - Industrial

Organisational measures

General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
General measures (carcinogens) Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenario; clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.

Risk management measures

Bulk closed unloading
Ensure material transfers are under containment or extract ventilation.
.
Drum/batch transfers
Ensure material transfers are under containment or extract ventilation.
.
Refuelling
Ensure material transfers are under containment or extract ventilation.
.
Refuelling aircraft
Ensure material transfers are under containment or extract ventilation.
.
General exposures (closed systems)
Handle substance within a closed system.
Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
Controlled ventilation means air is supplied or removed by a powered fan.
.
Use as a fuel
(closed systems)
Handle substance within a closed system.
.
Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
Retain drain-downs in sealed storage pending disposal or for subsequent recycle.
Clear spills immediately.
Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
Controlled ventilation means air is supplied or removed by a powered fan.
Wear chemically-resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
.
Storage
Store substance within a closed system.
Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
Controlled ventilation means air is supplied or removed by a powered fan.

Additional advice

Do not ingest. If swallowed, then seek immediate medical assistance.

Use as a fuel - Industrial

3. Exposure estimation (Environment 1)

Assessment method

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.55
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.44

4. Guidance to check compliance with the exposure scenario (Environment 1)

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

3. Exposure estimation (Health 1)

Assessment method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Exposure scenario
Use as a fuel - Professional

Identification

Product name	Gasoline (benzene 0 - 1 %)
CAS number	86290-81-5
Version number	2017
Es reference	ES12b (0-1%)

1. Title of exposure scenario

Main title	Use as a fuel - Professional
Process scope	Covers the use as a fuel (or fuel additives and additive components) within closed or contained systems, including incidental exposures during activities associated with its transfer, use, equipment maintenance and handling of waste.

Environment

Environmental release category	ERC9a Wide dispersive indoor use of substances in closed systems. ERC9b Wide dispersive outdoor use of substances in closed systems.
SPERC	ESVOC SpERC 9.12b.v1

Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC16 Using material as fuel sources, limited exposure to unburned product to be expected.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 880 000 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 440 tonnes
Maximum daily site tonnage: 1.2 tonnes

Frequency and duration of use

Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.01

Use as a fuel - Professional

Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.00001
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0.00001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Risk management measures

Good practice	Common practices vary across sites, thus conservative process release estimates used. Risk from environmental exposure is driven by fresh water.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.1% Removal efficiency (total): 96.1% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 61 tonne/day Assumed domestic sewage treatment plant flow (m^3/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	Not applicable.
Water	No wastewater treatment required.
Soil	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method	This substance is consumed during use and no waste of the substance is generated.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Organisational measures to prevent/limit releases, dispersion and exposure

Use as a fuel - Professional

Organisational measures

General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
General measures (carcinogens) Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenario; clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.

Risk management measures

General exposures (closed systems)
Outdoor.
Handle substance within a closed system.
.
Bulk closed unloading
Ensure material transfers are under containment or extract ventilation.
.
Drum/batch transfers
Ensure material transfers are under containment or extract ventilation.
.
Refuelling
Ensure material transfers are under containment or extract ventilation.
.
Use as a fuel
(closed systems)
Handle substance within a closed system.
.
Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
Retain drain-downs in sealed storage pending disposal or for subsequent recycle.
Clear spills immediately.
Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
Controlled ventilation means air is supplied or removed by a powered fan.
Ensure operatives are trained to minimise exposures.
.
Storage
Store substance within a closed system.
Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
Controlled ventilation means air is supplied or removed by a powered fan.

Additional advice

Do not ingest. If swallowed, then seek immediate medical assistance.

3. Exposure estimation (Environment 1)

Assessment method

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0056
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.02

Use as a fuel - Professional

4. Guidance to check compliance with the exposure scenario (Environment 1)

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

3. Exposure estimation (Health 1)

Assessment method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Exposure scenario
Use as a fuel - Consumer

Identification

Product name	Gasoline (benzene 0 - 1 %)
CAS number	86290-81-5
Version number	2017
Es reference	ES12c (0-1%)

1. Title of exposure scenario

Main title	Use as a fuel - Consumer
Process scope	Covers consumer uses in liquid fuels.
Product category	PC13 Fuels.

Environment

Environmental release category	ERC9a Wide dispersive indoor use of substances in closed systems. ERC9b Wide dispersive outdoor use of substances in closed systems.
SPERC	ESVOC SpERC 9.12c.v1

Non-industrial

Product sub-category	PC13_1 Liquid: automotive refuelling PC13_2 Liquid: scooter refuelling PC13_3 Liquid: garden equipment - use PC13_4 Liquid: garden equipment - refuelling

2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 8 200 000 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 4 100 tonnes
Maximum daily site tonnage: 11 tonnes

Frequency and duration of use

Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from wide dispersive use (regional only): 0.01
Emission factor - water	Release fraction to wastewater from wide dispersive use: 0.00001
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.00001

Environmental factors not influenced by risk management measures

Use as a fuel - Consumer

Dilution

Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

STP details

Estimated substance removal from wastewater via domestic sewage treatment: 96.1%
Maximum allowable site tonnage (Msafe): 53 tonne/day
Assumed domestic sewage treatment plant flow (m³/day):
2000.

Conditions and measures related to external treatment of waste for disposal

Disposal method

Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method

This substance is consumed during use and no waste of the substance is generated.

2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state

Liquid

Vapour pressure

Vapour pressure > 10 kPa at STP.

Concentration details

Covers percentage substance in the product up to 100% (unless stated differently).

Amounts used

PC13_1 Liquid: automotive refuelling
For each use event, covers use amounts up to 37.5 kg.
.
PC13_2 Liquid: scooter refuelling
For each use event, covers use amounts up to 3.75 kg.
.
PC13_3 Liquid: garden equipment - use
PC13_4 Liquid: garden equipment - refuelling
For each use event, covers use amounts up to 750 g.

Frequency and duration of use

Covers use up to 1 time(s)/day.
.
PC13_1 Liquid: automotive refuelling
Covers use up to 52 days/year.
Covers exposure up to 0.05 hours per event.
.
PC13_2 Liquid: scooter refuelling
Covers use up to 52 days/year.
Covers exposure up to 0.03 hours per event.
.
PC13_3 Liquid: garden equipment - use
Covers use up to 26 days/year.
Covers exposure up to 2.00 hours per event.
.
PC13_4 Liquid: garden equipment - refuelling
Covers use up to 26 days/year.
Covers exposure up to 0.03 hours per event.

Use as a fuel - Consumer

Human factors not influenced by risk management

Potentially exposed body parts	PC13_1 Liquid: automotive refuelling , PC13_2 Liquid: scooter refuelling : Covers skin contact area up to 210.00 cm². PC13_3 Liquid: garden equipment - use , PC13_4 Liquid: garden equipment - refuelling : Covers skin contact area up to 420.00 cm².

Other given operational conditions affecting Non-industrial exposure

Setting	PC13_1 Liquid: automotive refuelling , PC13_2 Liquid: scooter refuelling , PC13_3 Liquid: garden equipment - use : Covers outdoor use. Covers use in room size of 100 m³. PC13_4 Liquid: garden equipment - refuelling : Covers use in a one car garage (34 m³) under typical ventilation.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Other given operational conditions affecting Non-industrial exposure

Consumer information	Do not ingest. If swallowed, then seek immediate medical assistance. No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation (Environment 1)

Assessment method	Used Petrorisk model. (Hydrocarbon Block Method) Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0056 Risk-driving RCR - water compartment driven RCR(water) ≤ 0.021

4. Guidance to check compliance with the exposure scenario (Environment 1)

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate consumer exposures, unless otherwise indicated.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.