SAFETY DATA SHEET

Aspen 4

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

1.1. Product identifier

Product name	Aspen 4
Synonyms	Aspen 4 Full Range Technology, Aspen 4t
Article no.	USA
Extended SDS with ES incorporated	Yes
Extended SDS with ES incorporated, comments	Relevant information from component Exposure Scenarios has been incorporated into Sections 4 - 13 of this SDS.

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

Function	Description: Fuel
Use of the substance / preparation	Fuel for four-stroke engines.
Relevant identified uses	SU0-2 Other activities related to manufacture and services SU1 Agriculture, forestry, fishery SU19 Building and construction work SU21 Consumer uses: Private households (= general public = consumers) SU22 Professional uses: publicly accessible (administration, education, entertainment, services, craftsmen) PC13 Fuels AC03 Machinery and related mechanical appliances

1.3. Details of the supplier of the safety data sheet

Importer

Company name	Aspen USA Inc.
Postal address	410 N Michigan Ave, Suite 720
Postcode	60611
City	Chicago, IL
Country	USA
Telephone number	312-781-6277
Email	aspensds@lantmannen.com
Website	http://www.aspenfuels.us/

Manufacturer

Company name	Lantmännen Aspen AB
Postal address	Iberovägen 2
Postcode	SE-438 54
City	Hindås
Country	Sweden
Telephone number	+46 (0)301-23 00 00, (08:00-17:00 CET)
Email	aspensds@lantmannen.com
Website	http://www.aspenfuels.com/

1.4. Emergency telephone number

Emergency telephone	Telephone number: 1-800-424-9300 / +1 703-527-3887 Description: For emergencies only. Call CHEMTREC.
Identification, comments	In an emergency situation always contact 911 Emergency Services first.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP / GHS]	Flam. Liq. 1; H224; Asp. tox. 1; H304; Skin Irrit. 2; H315; STOT SE 3; H336;
Additional information on classification	The mixture is classified as dangerous according to CLP (EU), consistent with US OSHA HCS 2012 (29 CFR 1910.1200).

2.2. Label elements

Hazard pictograms (CLP)

Signal word	Danger
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.
Precautionary statements	P210 Keep away from heat / sparks / open flames / hot surfaces. – No smoking. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof [electrical / ventilating / lighting /] equipment. P242 Use non-sparking tools. P280 Wear protective gloves/eye protection/face protection. P271 Use only outdoors or in a well-ventilated area. P260 Do not breathe vapours. P405 Store locked up. P403+P235 Store in a well-ventilated place. Keep cool. P501 Dispose of contents / container to approved waste disposal site in an unsealed container.

	P303+P361+P353 IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water / shower. P313 Get medical advice / attention. P301+P310 IF SWALLOWED: Immediately call a POISON CENTER / doctor / other health care professional. P331 Do NOT induce vomiting. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312 Call a POISON CENTER / doctor / other health care professional if you feel unwell. P370+P378 In case of fire: Usewater spray, foam, carbon dioxide (CO2), dry chemical to extinguish.
Supplemental label information	See SDS for further information. Container is not intended for refill. Acc. C.2.4.6, appendix C to §1910.1200 precautionary statements may be combined or consolidated to save label space and improve readability.
Tactile warnings	Yes
Child-protection	Yes

2.3. Other hazards

Health effect	May cause nausea, headache, dizziness and poisoning. Narcosis in high concentrations. In high concentrations, vapours may irritate throat and respiratory system and cause coughing. Repeated exposure may cause skin dryness or cracking.
Other hazards	Volatile. Vapours may form explosive mixtures with air. Risk of soil and ground water contamination. Vapours are heavier than air and may travel along the floor and in the bottom of containers. Vapours may be ignited by a spark, a hot surface or an ember.

SECTION 3: Composition / information on ingredients

3.2. Mixtures

Substance	Identification	Classification	Contents
Alkylate (US)	CAS No.: 68527-27-5, 64741-64-6	Flam. Liq. 1; H224 Asp. tox. 1; H304 Skin Irrit. 2; H315 STOT SE 3; H336 Aquatic Chronic 2; H411	80 - 95 %
Isomerate (US)	CAS No.: 64741-70-4	Flam. Liq. 1; H224 Asp. tox. 1; H304 Aquatic Chronic 2; H411 Skin Irrit. 2; H315 STOT SE 3; H336	5 -15 %
n- Butane (US)	CAS No.: 106-97-8	Flam. Gas 1; H220 Press. Gas; H280	0 -4 %
Isopentane (US)	CAS No.: 78-78-4	Flam. Liq. 1; H224 Asp. tox. 1; H304 STOT SE 1; H336 Aquatic Chronic 2; H411 EUH 066	0 - 2.4 %
Description of the mixture	Contains as contamination: n-hexane, CAS No 110-54-3 <1%, benzene, CAS No		

	71-43-2 < 0,1%, toluene CAS No 108-88-3 <1%, ethylbenzene, CAS No 100-41-4 <0, 1%, xylene, CAS No 1330-20-7 <1% Any concentration shown as a range is due to batch variation acc. to Table D.1, appendix D, §1910.1200. Within the current knowledge of the supplier - the mixture contains no additional ingredients which, with reference to concentrations and classifications, needs to be listed in this section.
Remarks, substance	Ingredients' environmental classification is not supported by tests on the mixture.

SECTION 4: First aid measures

4.1. Description of first aid measures

General	Fire and explosion: Leave the zone of danger immediately and evacuate unnecessary personnel. Bring injured persons out of the zone of danger immediately. Beware of danger of shock in seemingly not-injured persons. IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician. The product may produce a serious, potentially fatal pneumonia if swallowed or vomited.
Inhalation	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately rinse with water for several minutes. Make sure to remove any contact lenses from the eyes before rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Rinse mouth. DO NOT induce vomiting. Get medical attention immediately. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

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

General symptoms and effects	In high concentrations, vapours and aerosol mists have a narcotic effect and may cause headache, fatigue, dizziness and nausea.
Acute symptoms and effects	May be fatal if swallowed and enters airway. Entry into the lung following ingestion or vomiting may cause chemical pneumonitis.
Delayed symptoms and effects	Repeated exposure may cause skin dryness or cracking.

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

Medical treatment	Treat symptomatically. Stomach pumping only after endotracheal intubation.
Medical monitoring for delayed effects	Central nervous system depression including narcotic effects such as drowsiness, narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with foam, carbon dioxide, dry powder or water fog.
Improper 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

Fire and explosion hazards	Highly flammable liquid and vapour. Vapours may form explosive air mixtures even at room temperature. If heated, volume and pressure increases strongly, resulting in explosion of container. Vapours are heavier than air and may spread near ground to sources of ignition.
Hazardous combustion products	May form carbon monoxide from incomplete combustion.

5.3. Advice for firefighters

Personal protective equipment	In case of inadequate ventilation wear respiratory protection. Use personal protective equipment as required.
Fire fighting procedures	Containers close to fire should be removed immediately or cooled with water. Avoid water in straight hose stream; will scatter and spread fire. Be aware of risk of fire re-starting, and risk of explosion.
Special protective equipment for firefighters	In case of a large fire or in restricted or poorly ventilated areas, wear comprehensive fire resistant protective clothing and SCBA breathing apparatus with full mask and positive air pressure.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal protection measures	Do not smoke or use open fire, or other sources of ignition. Ventilate well. In case of inadequate ventilation use suitable respirator. Take precautionary measures against static discharges.
For emergency responders	Eliminate all ignition sources if safe to do so. Also see section 5.

6.2. Environmental precautions

Environmental precautionary measures	Avoid discharge into drains, water courses or onto the ground. Contain spillages with sand, earth or any suitable adsorbent material. Contact local authorities in case of spillage to drain/aquatic environment.

6.3. Methods and material for containment and cleaning up

Containment	Absorb spillage with non-combustible, absorbent material. Remove sources of ignition. Beware of the explosion danger. Cover large spillages with foam.

6.4. Reference to other sections

Other instructions	Section 8: Personal protection. Section 13: Disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling	Flammable/combustible - Keep away from oxidisers, heat and flames. Take

	precautionary measures against static discharges. Provide good ventilation. Do not use in confined spaces without adequate ventilation and/or respirator.

Protective safety measures

Safety measures to prevent fire	Keep cool. Keep away from heat / sparks / open flames / hot surfaces. — No smoking. Protect from sunlight.
Preventititve measures to protect the environment	Avoid discharge into drains, water courses or onto the ground.
Advice on general occupational hygiene	Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Avoid eating, drinking and smoking when using the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage	Store in tightly closed original container in a well-ventilated place. Flammable liquid storage. Store at temperatures not exceeding 50 °C / 122 °F.
Conditions to avoid	Keep away from heat, sparks and open flame. Flammable/combustible - Keep away from oxidisers, heat and flames.

Conditions for safe storage

Technical measures and storage conditions	Use only non-sparking tools.
Requirements for storage rooms and vessels	Large amounts and storages should be stored in accordance with national regulation on storage of flammable liquids. Ground / bond container and receiving equipment.
Advice on storage compatability	Keep flammable liquids away from flammable gas and highly flammable goods. US/Canada: Flammable Class IB liquid.

7.3. Specific end use(s)

Specific use(s)	The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Substance	Identification	Value	TWA Year
Alkylate (US)	CAS No.: 68527-27-5, 64741-64-6	Country of origin: US TWA (8h) : 500 ppm TWA (8h) : 2350 mg/m³ Source: OSHA PEL. OSHA Occupational Chemical Database Comments: As Octane. Country of origin: US TWA (8h) : 100 ppm TWA (8h) : 350 mg/m³ **Exposure limit letter** Letter code: REL-C; 385	

		ppm (1800 mg/m³) [15 minutes] . Source: NIOSH REL OSHA Occupational Chemical Database Comments: As Octane. Country of origin: US TWA (8h) : 300 ppm Source: ACGIH TLV®- TWA OSHA Occupational Chemical Database Comments: As Octane.
Isomerate (US)	CAS No.: 64741-70-4	Country of origin: US TWA (8h) : 100 ppm TWA (8h) : 350 mg/m³ **Exposure limit letter** Letter code: REL-C; 510 ppm / 1800 mg/m3 [15 minutes] Source: NIOSH REL OSHA Occupational Chemical Database Comments: As Hexane (all isomers except n-hexane) Country of origin: US TWA (8h) : 500 ppm **OEL short term value** Value: 1000 ppm **OEL short term value** Appraisal period: 15 min Source: ACGIH TLV®- TWA OSHA Occupational Chemical Database Comments: As Hexane (all isomers except n-hexane)
n- Butane (US)	CAS No.: 106-97-8	Country of origin: US TWA (8h) : 800 ppm TWA (8h) : 1900 mg/m³ Source: NIOSH REL OSHA Occupational Chemical Database Country of origin: US TWA (8h) : 1000 ppm Source: ACGIH TLV®- TWA OSHA Occupational Chemical Database
Isopentane (US)	CAS No.: 78-78-4	Country of origin: US TWA (8h) : 1000 ppm TWA (8h) : 2950 mg/m³ Source: OSHA PEL. OSHA Occupational Chemical Database Comments: As Pentane Country of origin: US

		TWA (8h) : 120 ppm TWA (8h) : 350 mg/m³ **Exposure limit letter** Letter code: REL-C; 610 ppm / 1800 mg/m3 [15 minutes] Source: NIOSH REL OSHA Occupational Chemical Database Comments: As n-pentane Country of origin: US **OEL short term value** Value: 1000 ppm Source: ACGIH TLV®- TWA OSHA Occupational Chemical Database Comments: As Pentane, all isomers
n-Hexane (US)	CAS No.: 110-54-3	Country of origin: US TWA (8h) : 500 ppm TWA (8h) : 1800 mg/m³ Source: OSHA PEL. OSHA Occupational Chemical Database Country of origin: US TWA (8h) : 50 ppm TWA (8h) : 180 mg/m³ Source: NIOSH REL OSHA Occupational Chemical Database Country of origin: US TWA (8h) : 50 ppm Source: ACGIH TLV®- TWA OSHA Occupational Chemical Database
Benzene (US)	CAS No.: 71-43-2	Country of origin: US TWA (8h) : 1 ppm **OEL short term value** Value: 5 ppm **OEL short term value** Appraisal period: 15 min **Exposure limit letter** Letter code: OSHA-Ca Source: OSHA PEL. OSHA Occupational Chemical Database Country of origin: US TWA (8h) : 0,1 ppm **OEL short term value** Value: 1 ppm **OEL short term value** Appraisal period: 15 min **Exposure limit letter** Letter code: NIOSH-Ca

		Source: NIOSH REL OSHA Occupational Chemical Database Country of origin: US TWA (8h) : 0,5 ppm **OEL short term value** Value: 2,5 ppm **Exposure limit letter** Letter code: Skin TLV-A1 BEI® Source: ACGIH TLV®- TWA OSHA Occupational Chemical Database
Toluene (US)	CAS No.: 108-88-3	Country of origin: US TWA (8h) : 200 ppm **Exposure limit letter** Letter code: PEL-C; 300 ppm (500 ppm peak) [10 min maximum in an 8 hr shift] . Source: OSHA PEL. OSHA Occupational Chemical Database Country of origin: US TWA (8h) : 100 ppm TWA (8h) : 350 mg/m³ **OEL short term value** Value: 150 ppm **OEL short term value** Value: 560 mg/m³ **OEL short term value** Appraisal period: 15 min Source: NIOSH REL OSHA Occupational Chemical Database Country of origin: US TWA (8h) : 20 ppm **Exposure limit letter** Letter code: BEI® Source: ACGIH TLV®- TWA OSHA Occupational Chemical Database
Ethyl benzene (US)	CAS No.: 100-41-4	Country of origin: US Limit value type: TWA TWA (8h) : 100 ppm TWA (8h) : 435 mg/m³ Source: OSHA PEL. OSHA Occupational Chemical Database Country of origin: US Limit value type: TWA TWA (8h) : 100 ppm TWA (8h) : 435 mg/m³ **OEL short term value**

		Value: 125 ppm **OEL short term value** Value: 545 mg/m³ **OEL short term value** Appraisal period: 15 min Source: NIOSH REL OSHA Occupational Chemical Database Country of origin: US Limit value type: TWA TWA (8h) : 20 ppm Source: ACGIH TLV®- TWA OSHA Occupational Chemical Database
Xylene (US)	CAS No.: 1330-20-7	Country of origin: US Limit value type: TWA TWA (8h) : 100 ppm TWA (8h) : 435 mg/m³ Source: NIOSH REL OSHA Occupational Chemical Database Country of origin: US Limit value type: TWA TWA (8h) : 100 ppm TWA (8h) : 435 mg/m³ **OEL short term value** Value: 150 ppm **OEL short term value** Value: 655 mg/m³ **OEL short term value** Appraisal period: 15 min Source: OSHA PEL. OSHA Occupational Chemical Database Country of origin: US Limit value type: TWA TWA (8h) : 100 ppm **OEL short term value** Value: 150 ppm Source: ACGIH TLV®- TWA OSHA Occupational Chemical Database
Petroleum (US)		
Biological limit value	Not applicable.	

DNEL / PNEC

Substance	Alkylate (US)
DNEL	**Group:** Professional **Route of exposure:** Acute inhalation (systemic) **Value:** 1300 mg/m³ **Reference:** 15 min **Comments:** 68527-27-5

	Group: Professional **Route of exposure:** Acute inhalation (local) **Value:** 1100 mg/m³ **Reference:** 15 min **Comments:** 68527-27-5 **Group:** Professional **Route of exposure:** Long-term inhalation (local) **Value:** 840 mg/m³ **Reference:** 8 h **Comments:** 68527-27-5 **Group:** Consumer **Route of exposure:** Acute inhalation (systemic) **Value:** 1200 mg/m³ **Reference:** 15 min **Comments:** 68527-27-5 **Group:** Consumer **Route of exposure:** Acute inhalation (local) **Value:** 640 mg/m³ **Reference:** 15 min **Comments:** 68527-27-5 **Group:** Consumer **Route of exposure:** Long-term inhalation (local) **Value:** 180 mg/m³ **Reference:** 24 h **Comments:** 68527-27-5
Substance	Isomerate (US)
DNEL	**Group:** Professional **Route of exposure:** Acute inhalation (systemic) **Value:** 1300 mg/m³ **Reference:** 15 min **Group:** Professional **Route of exposure:** Acute inhalation (local) **Value:** 1100 mg/m³ **Reference:** 15 min **Group:** Professional **Route of exposure:** Long-term inhalation (local) **Value:** 840 mg/m³ **Reference:** 8 h **Group:** Consumer **Route of exposure:** Acute inhalation (systemic) **Value:** 1200 mg/m³ **Reference:** 15 min **Group:** Consumer **Route of exposure:** Acute inhalation (local) **Value:** 640 mg/m³ **Reference:** 15 min

	Group: Consumer **Route of exposure:** Long-term inhalation (systemic) **Value:** 180 mg/m³ **Reference:** (24 h)
Substance	Isopentane (US)
DNEL	**Group:** Professional **Route of exposure:** Long-term dermal (systemic) **Value:** 432 mg/kg bw/day **Group:** Consumer **Route of exposure:** Long-term dermal (systemic) **Value:** 214 mg/kg bw/day **Group:** Professional **Route of exposure:** Long-term inhalation (systemic) **Value:** 3000 mg/m³ **Group:** Consumer **Route of exposure:** Long-term inhalation (systemic) **Value:** 643 mg/m³ **Route of exposure:** Long-term oral (systemic) **Value:** 214 mg/kg bw/day **Value:** 1296 mg/kg bw/day **Comments:** NOAEL **Value:** 1070 mg/kg bw/day **Comments:** NOAEL **Value:** 9000 mg/m³ **Comments:** NOAEC **Value:** 3215 mg/m³ **Comments:** NOAEC **Value:** 1070 mg/kg bw/day **Comments:** NOAEL DNELs are derived from the Indicative Occupational Exposure Limit (IOEL) for Pentane, Isopentane, and Neopentane
PNEC	**Route of exposure:** Freshwater **Reference:** 2.6 x 10^(-6) mg/l **Route of exposure:** Saltwater **Value:** 0.0000055 µg/l **Reference:** 5.5 x 10^(-9) mg/l **Route of exposure:** Freshwater sediments **Value:** 0.0036 µg/l **Reference:** 3.6 x 10^(-6) mg/kg **Route of exposure:** Saltwater sediments **Reference:** 6.7 x 10^(-9) mg/l **Route of exposure:** Soil **Reference:** 1.6 x 10^(-8) mg/kg

	Comments: Natural **Route of exposure:** Soil **Reference:** 3.5 x 10^(-8) mg/kg **Comments:** Agricultural. **Route of exposure:** Water **Reference:** 1.3 x 10^(-6) mg/l **Route of exposure:** Air **Reference:** 9.2 x 10^(-5) mg/m3 **Comments:** PNEC for isopentane has been derived using the HC5 statistical extrapolation method and the target lipid model.

8.2. Exposure controls

Safety signs

Precautionary measures to prevent exposure

Appropriate engineering controls	Do not handle near food and drink. Provide access to washing facilities incl. soap, skin cleanser and fatty cream. Observe occupational exposure limits and minimise the risk of inhalation of vapours and mist.
Technical measures to prevent exposure	Provide adequate general and local exhaust ventilation. Provide eyewash station and safety shower.

Eye / face protection

Additional eye protection measures	Contact lenses should not be worn when working with this chemical!
Eye protection, comments	Wear approved chemical safety goggles where eye exposure is reasonably probable.

Hand protection

Suitable materials	Nitrile.
Required properties for hand protection	Fulfil the requirements in 29 CFR 1910.138 (OSHA). ANSI/ISEA 105-2016.
Breakthrough time	Value: 8 hour(s) Comments: Level 6.
Hand protection, comments	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The choice of most suitable gloves for a specific workplace should be discussed with the producers of the protective gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Skin protection

Suitable protective clothing	Wear apron or protective clothing in case of splashes.
Additional skin protection measures	Provide eyewash station and safety shower.
Skin protection remark	Contaminated clothing is a risk for fire and/or explosion. Wash contaminated clothing before reuse.

Respiratory protection

Respiratory protection necessary at	Respiratory protection must be used if air contamination exceeds acceptable level.
Recommended respiratory protection	Equipment for self-rescue: Respirator acc. to 29 CFR 1910.134. Mask type: Respirator according to respiratory protection program, 29 CFR 1910. 134. Description: Shall precedes of a training program before use acc. to OSHA. Reference to relevant standard: ANSI/AIHA Z88.2 Equipment for self-rescue: Respirator according to EN 140. Mask type: Use respiratory equipment with combination filter, type AX/P2. Description: Filters can only be used 2 hours at a time, and cannot be used if oxygen levels drop below 19 vol%.
Additional respiratory protection measures	All handling to take place in well-ventilated area.
Respiratory protection, comments	Under normal conditions of use respiration protection should not be required.

Thermal hazards

Thermal hazards	No recommendation given.

Hygiene / environmental

Personal protection equipment, comments	Change work clothing daily if there is any possibility of contamination.
Specific hygiene measures	Promptly remove non-impervious clothing that becomes wet. DO NOT SMOKE IN WORK AREA!

Appropriate environmental exposure control

Product related measures to prevent exposure	Prevent spillage entering a watercourse or sewer, contaminating soil or vegetation. If this is not possible notify police and appropriate authorities immediately.

Exposure controls

Safety measures for consumer use of the chemical	This product is not to be used under conditions of poor ventilation. Remove contaminated clothing and wash the skin thoroughly with soap and water after work. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Do not store tobacco, food or beverage in work rooms or areas where the product is used.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Clear liquid
Colour	Colourless
Odour	Petroleum
pH	Status: In delivery state Comments: Not relevant. Status: In aqueous solution Comments: Not relevant.
Boiling point / boiling range	Value: 86 -401 °F Method: EN ISO 3405 Test reference: Boiling range Comments: Boiling point is 167 °F as defined by NFPA® 30 (USA)
Flash point	Value: - 49 °F
Lower explosion limit with unit of measurement	Value: 1 vol%
Upper explosion limit with units of measurement	Value: 8 vol%
Vapour pressure	Value: 55 - 65 kPa Method: EN 13016-1 Temperature: = 100 °F
Density	Value: 690 - 720 kg/m³ Method: EN ISO 12185 Temperature: 59 °F
Solubility	Medium: Other Name: Very soluble in hydrocarbons. Comments: > 1- 6 mg/l in water.
Partition coefficient: n-octanol/ water	Value: 4,3 - 4,8 Comments: Calculated value for mixture.
Spontaneous combustability	Value: > 572 °F
Viscosity	Value: < 1 mm2/s Temperature: = 104 °F

9.2. Other information

Physical hazards

Conductivity	Value: 0.0002 µS/m Method: SS-ISO 6297-1998 Comments: (200 pS/m) Temperature: 68 °F
Gas group	Comments: IIA.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	Not reactive under normal use and storage conditions.

10.2. Chemical stability

Stability	Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Under normal condition of storage and use, no hazardous reactions will occur. Contains a volatile component. Vapours may form explosive mixtures with air.

10.4. Conditions to avoid

Conditions to avoid	Keep away from heat / sparks / open flames / hot surfaces. — No smoking. Avoid exposure to high temperatures or direct sunlight. Take precautionary measures against static discharge.

10.5. Incompatible materials

Materials to avoid	Strong oxidising substances.

10.6. Hazardous decomposition products

Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Substance	Alkylate (US)
Acute toxicity	**Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Oral **Method:** OECD 401 **Value:** > 5000 mg/kg **Animal test species:** Rat **Comments:** 68527-27-5 **Type of toxicity:** Acute **Effect tested:** LC50 **Route of exposure:** Inhalation. **Method:** OECD 403 **Value:** > 5610 mg/m³ **Animal test species:** Rat **Comments:** 68527-27-5 **Effect tested:** LD50 **Route of exposure:** Dermal **Method:** OECD 402 **Value:** > 2000 mg/kg bw **Animal test species:** Rabbit

	Comments: 68527-27-5 **Effect tested:** LD50 **Route of exposure:** Oral **Value:** > 5000 mg/kg **Animal test species:** Rat **Comments:** 64741-64-6 **Effect tested:** LD50 **Route of exposure:** Dermal **Value:** > 2000 mg/kg **Animal test species:** Rabbit **Comments:** 64741-64-6 **Effect tested:** LC50 **Route of exposure:** Inhalation. **Value:** > 5.2 mg/l **Animal test species:** Rat **Test reference:** 4 hr **Comments:** 64741-64-6
Substance	Isomerate (US)
Acute toxicity	**Effect tested:** LD50 **Route of exposure:** Oral **Method:** OECD 401 **Value:** > 5000 mg/kg **Animal test species:** Rat **Effect tested:** LD50 **Route of exposure:** Dermal **Method:** OECD 402 **Value:** > 5000 mg/kg **Animal test species:** Rabbit **Effect tested:** LC50 **Route of exposure:** Inhalation. **Method:** OECD TG 403 **Value:** > 5610 mg/m³ **Animal test species:** Rat
Substance	n- Butane (US)
Acute toxicity	**Effect tested:** LC50 **Route of exposure:** Inhalation. **Method:** Calculated. **Value:** > 20 mg/l
Substance	Isopentane (US)
Acute toxicity	**Type of toxicity:** Acute **Route of exposure:** Oral **Method:** Read-across: n-pentane. **Value:** > 2000 mg/kg **Animal test species:** Rat **Type of toxicity:** Acute **Route of exposure:** Oral

	Method: Read-across: cyclopentane. **Value:** > 5000 mg/kg **Animal test species:** Rat **Type of toxicity:** Acute **Route of exposure:** Inhalation. **Method:** Read-across: cyclopentane. **Value:** > 25.3 mg/l **Animal test species:** Rat **Type of toxicity:** Subchronic **Effect tested:** NOEC **Route of exposure:** Inhalation. **Value:** > 2220 ppm **Animal test species:** Rat **Comments:** Organ. **Type of toxicity:** Chronic **Effect tested:** NOEC **Route of exposure:** Inhalation. **Value:** > 6646 ppm **Animal test species:** Rat **Comments:** Neurological.

Other information regarding health hazards

Substance	Alkylate (US)
Skin corrosion / irritation test result	**Toxicity type:** Skin corrosion **Method:** OECD 404 **Evaluation result:** Prolonged contact may cause redness, irritation and cracking. 64741-64-6 **Comments:** Irritating to respiratory system. The product causes irritation of mucous membranes and may cause abdominal discomfort if swallowed. 68527-27-5
Skin corrosion / irritation, other information	Liquid irritates mucous membranes and may cause abdominal pain if swallowed. Gas or vapour may irritate respiratory system.
Assessment of skin corrosion / irritation, classification	Irritating to skin.
General	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Inhalation	In high concentrations, vapours are narcotic and may cause headache, fatigue, dizziness and nausea. May cause irritation to the respiratory system.
Skin contact	Prolonged or repeated contact leads to drying of skin. Acts as a defatting agent on skin. May cause cracking of skin, and eczema.
Eye contact	May cause minor irritation on eye contact.
Ingestion	H304 May be fatal if swallowed and enters airways.
Sensitisation	None.
Assessment of germ cell mutagenicity, classification	The product does not need to be classified as Carcinogen, Mutagen or Reproductions toxic (CMR) due to low concentrations of components suspected

	or known to be CMR.
Carcinogenicity	Comments: The product does not need to be classified as Carcinogen, Mutagen or Reproductions toxic (CMR) due to low concentrations of components suspected or known to be CMR.
Reproductive toxicity	Comments: The product does not need to be classified as Carcinogen, Mutagen or Reproductions toxic (CMR) due to low concentrations of components suspected or known to be CMR.
Assessment of specific target organ SE, classification	May cause drowsiness or dizziness. Central nervous system depression including narcotic effects such as drowsiness, narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.
Aspiration hazard due to hydrocarbon content, comments	May cause nausea, headache, dizziness and intoxication. Pneumonia may be the result if vomited material containing solvents reaches the lungs.
Assessment of aspiration hazard, classification	H304 May be fatal if swallowed and enters airways.

Symptoms of exposure

In case of ingestion	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
In case of skin contact	Acts as a defatting agent on skin. May cause cracking of skin, and eczema.
In case of inhalation	Mild intoxication (incl. fatigue, lassitude, irritability, headache, nausea). Central nervous system depression.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic, fish	Value: > 100 mg/l Test duration: 96 h Species: Danio rerio Method: OECD No 203. WAF Test reference: Test report 046/13. Comments: LC50 Data for mixture.
Acute aquatic, algae	Value: > 100 mg/l Test duration: 72h Species: Raphidoceles subcapitata Method: OECD No 201 WAF Test reference: Test report 182/06. Comments: ErC50 Data for mixture.
Acute aquatic, Daphnia	Value: > 1000 mg/l Test duration: 48h Species: Daphnia magna Method: OECD No 202 WAF Test reference: Test report 31/04. Comments: EL50 Data for mixture.

12.2. Persistence and degradability

Persistence and degradability, comments	Volatile substances are degraded in the atmosphere within a few days. The product is degraded completely by photochemical oxidation. The product has not proven to be degradable under anaerobic conditions.

12.3. Bioaccumulative potential

Bioaccumulative potential	Possibly bioaccumulative, based on the data on the ingredients.
Bioaccumulation, comments	Log Kow 4.3 -4.8. Calculated value for mixture.

12.4. Mobility in soil

Mobility	The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. The product is insoluble in water and will spread on the water surface.

12.5. Results of PBT and vPvB assessment

PBT assessment results	This product does not contain any PBT or vPvB substances.

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Specify the appropriate methods of disposal	Make sure containers are empty before discarding (explosion risk). Vent to atmosphere. Dispose of contents/container to licensed disposal company. Avoid release to the environment.
EWC waste code	EWC waste code: 130702 petrol Classified as hazardous waste: Yes
EWL packing	EWC waste code: 150110 packaging containing residues of or contaminated by dangerous substances Classified as hazardous waste: Yes
EU Regulations	2008/98/EG
National regulations	Resource Conservation and Recovery Act (RCRA)
National waste group	Depending on hazard characteristics and use the waste shall be indentified acc. to 40 CFR part 261.
Other information	The packaging must be empty (drop-free, when inverted).

SECTION 14: Transport information

Dangerous goods	Yes

14.1. UN number

ADR / RID / ADN	1203
IMDG	1203
ICAO / IATA	1203

Comments	ERG Code: 128 (DOT/US and TC/Canada)

14.2. UN proper shipping name

Proper shipping name english ADR / RID / ADN	GASOLINE
ADR / RID / ADN	GASOLINE
IMDG	GASOLINE
ICAO / IATA	GASOLINE

14.3. Transport hazard class(es)

ADR / RID / ADN	3
Classificaton code ADR / RID / ADN	F1
IMDG	3
ICAO / IATA	3

14.4. Packing group

ADR / RID / ADN	II
IMDG	II
ICAO / IATA	II

14.5. Environmental hazards

ADR / RID / ADN	Yes.
IMDG	Yes.
ICAO / IATA	Yes.

14.6. Special precautions for user

Special safety precautions for user	See other information.

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

Transport in bulk (yes/no)	No
Pollution category	Not applicable.

Additional information

ADR / RID / ADN hazard label	3
IMDG Hazard label	3
ICAO / IATA Hazard label	3
Additional information	In compliance with 49 CFR.

ADR / RID - Other information

Tunnel restriction code	D/E
Transport category	2
Hazard No.	33
RID other applicable information	33

IMDG / ICAO / IATA Other information

EmS	F-E, S-E

SECTION 15: Regulatory information

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

National regulations	TSCA: This product and/or its components are listed. SARA 302/304: No components were identified. SARA 311/312: Immediate (acute) health hazard; yes, delayed (chronic) health hazard; yes. fire hazard; yes. Facilities handling 10 000 pounds or more needs to fulfil the demands. SARA 313: No components at or above the "di minimis". CERCLA: Does not contain any components with a CERCLA RQ other than as contaminations in very small amounts (n-hexane <1%, benzene <0,1%, toulene <1%), ethylbenzene <0,1%, xylene <1%). The Clean Air Act (CAA) Section 112 (r) Accidental Release Prevention (40 CFR 68.130): Butane (CAS 106-97-8), Isopentane (CAS 78-78-4) The Clean Air Act (CAA) List of Hazardous Air Pollutants (HAP's): As contaminations in very small amounts ((n-hexane <1%, benzene <0,1%, toulene <1%), ethylbenzene <0,1%, xylene <1%). California Proposition 65: Contains components known to the state of California to cause cancer, birth defects or other reporoductive harm. As contaminations in very small amounts (n-hexane <1%, benzene <0,1%, toulene <1%), ethylbenzene <0,1%).
Biocides	No
Nanomaterial	No
References (laws/regulations)	US OSHA HCS 2012 (29 CFR 1910.1200). Resource Conservation and Recovery Act, RCRA (40 CFR 239-282). Transportation of dangerous goods (49 CFR, Subchapter C) UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS). 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, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.
Legislation and regulations	The Safety Data Sheet conforms to U.S OSHA HCS 2012, (29 CFR 1910.1200) and Canadian WHMIS 2015, Hazardous Products Regulations (HPR).

15.2. Chemical safety assessment

Chemical safety assessment performed	Yes

Exposure scenario comments	Relevant information from exposure scenarios and chemical safety determinations for the individual components has been incorporated into Sections 4 - 13.

SECTION 16: Other information

Supplier's notes	The information on this data sheet represents our current data and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product which involves using the product in combination with any other product or any other process is the responsibility of the user.
Key literature references and sources for data	Test report 31/04. Aspen 4T, Daphnia magna immobilisation test. Toxicon AB (2004). Test report 182/06. Toxicity testing of Aspen 4T, Algae growth inhibition test. Toxicon AB (2007). Test report 07-25. Evaluation of the aerobic biodegradability of organic compounds 182/06 (Aspen 4T). AnoxKaldnes AB (2007). Examination essay. Diffusion of alkylate petrol during discharge in the environment. Gunilla Henriksson, Annalena Tåmt (2004). Test report 046/13. Aspen 4. Fish, acute toxicity test. Toxicon AB (2013). Kemiska Ämnen. Prevent AB (2013).
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