Conforms to US OSHA Hazard Communication 29CFR1910.1200

SAFETY DATA SHEET

Agilent Technologies

Atomic Emission Detector Sample Kit, Part Number 8500-5067

Section 1. Identification

1.1 Product identifier

Product name : Atomic Emission Detector Sample Kit, Part Number 8500-5067

Part no. (chemical kit) : 8500-5067

Part no. : AED Test Mixture #1 8500-5068-1
AED Test Mixture #2 8500-5069-1

Validation date : 10/30/2023

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

Identified uses : Reagents and Standards for Analytical Chemistry Laboratory Use

AED Test Mixture #1 3 x 0.5 ml
AED Test Mixture #2 3 x 0.5 ml

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051, USA
800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : AED Test Mixture #1 This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

AED Test Mixture #2 This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

AED Test Mixture #1

H225	FLAMMABLE LIQUIDS - Category 2
H315	SKIN IRRITATION - Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
H304	ASPIRATION HAZARD - Category 1
H400	AQUATIC HAZARD (ACUTE) - Category 1
H410	AQUATIC HAZARD (LONG-TERM) - Category 1

AED Test Mixture #2

H225	FLAMMABLE LIQUIDS - Category 2
H315	SKIN IRRITATION - Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
H304	ASPIRATION HAZARD - Category 1
H400	AQUATIC HAZARD (ACUTE) - Category 1
H410	AQUATIC HAZARD (LONG-TERM) - Category 1

Section 2. Hazards identification

AED Test Mixture #1 — Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 4.3%

AED Test Mixture #2 — Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 4.3%

2.2 GHS label elements

Hazard pictograms :

AED Test Mixture #1

AED Test Mixture #2

Signal word :

AED Test Mixture #1 — Danger

AED Test Mixture #2 — Danger

Hazard statements :

AED Test Mixture #1

H225 - Highly flammable liquid and vapor.
H304 - May be fatal if swallowed and enters airways.
H315 - Causes skin irritation.
H336 - May cause drowsiness or dizziness.
H410 - Very toxic to aquatic life with long lasting effects.

AED Test Mixture #2

H225 - Highly flammable liquid and vapor.
H304 - May be fatal if swallowed and enters airways.
H315 - Causes skin irritation.
H336 - May cause drowsiness or dizziness.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention :

AED Test Mixture #1

P280 - Wear protective gloves.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P241 - Use explosion-proof electrical, ventilating or lighting equipment.
P242 - Use non-sparking tools.
P243 - Take action to prevent static discharges.
P273 - Avoid release to the environment.
P261 - Avoid breathing vapor.
P264 - Wash thoroughly after handling.

AED Test Mixture #2

P280 - Wear protective gloves.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P241 - Use explosion-proof electrical, ventilating or lighting equipment.
P242 - Use non-sparking tools.
P243 - Take action to prevent static discharges.
P273 - Avoid release to the environment.
P261 - Avoid breathing vapor.
P264 - Wash thoroughly after handling.

Section 2. Hazards identification

Response	:	AED Test Mixture #1	P391 - Collect spillage. P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. P362 + P364 - Take off contaminated clothing and wash it before reuse. P302 + P352 - IF ON SKIN: Wash with plenty of water.
		AED Test Mixture #2	P391 - Collect spillage. P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. P362 + P364 - Take off contaminated clothing and wash it before reuse. P302 + P352 - IF ON SKIN: Wash with plenty of water.
Storage	:	AED Test Mixture #1	P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P403 + P235 - Keep cool.
		AED Test Mixture #2	P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P403 + P235 - Keep cool.
Disposal	:	AED Test Mixture #1	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		AED Test Mixture #2	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	:	AED Test Mixture #1	None known.
		AED Test Mixture #2	None known.

2.3 Other hazards

Hazards not otherwise classified	:	AED Test Mixture #1	None known.
		AED Test Mixture #2	None known.

Section 3. Composition/information on ingredients

Substance/mixture	:	AED Test Mixture #1	Mixture
		AED Test Mixture #2	Mixture

Ingredient name	%	CAS number
AED Test Mixture #1		
2,2,4-trimethylpentane	≥90	540-84-1
dodecane	≤5	112-40-3
Octane	≤4.8	111-65-9
AED Test Mixture #2		
2,2,4-trimethylpentane	≥90	540-84-1
dodecane	≤5	112-40-3

Section 3. Composition/information on ingredients

Octane	≤4.8	111-65-9

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact : AED Test Mixture #1: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

AED Test Mixture #2: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : AED Test Mixture #1: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

AED Test Mixture #2: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : AED Test Mixture #1: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

AED Test Mixture #2: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get

Section 4. First aid measures

			medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	:	AED Test Mixture #1	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
		AED Test Mixture #2	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	:	AED Test Mixture #1	No known significant effects or critical hazards.
		AED Test Mixture #2	No known significant effects or critical hazards.
Inhalation	:	AED Test Mixture #1	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
		AED Test Mixture #2	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
Skin contact	:	AED Test Mixture #1	Causes skin irritation.
		AED Test Mixture #2	Causes skin irritation.
Ingestion	:	AED Test Mixture #1	Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.
		AED Test Mixture #2	Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact	:	AED Test Mixture #1	Adverse symptoms may include the following: pain or irritation watering redness
		AED Test Mixture #2	Adverse symptoms may include the following: pain or irritation watering redness

Section 4. First aid measures

Inhalation	:	AED Test Mixture #1	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
		AED Test Mixture #2	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Skin contact	:	AED Test Mixture #1	Adverse symptoms may include the following: irritation redness
		AED Test Mixture #2	Adverse symptoms may include the following: irritation redness
Ingestion	:	AED Test Mixture #1	Adverse symptoms may include the following: nausea or vomiting
		AED Test Mixture #2	Adverse symptoms may include the following: nausea or vomiting

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	:	AED Test Mixture #1	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		AED Test Mixture #2	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	:	AED Test Mixture #1	No specific treatment.
		AED Test Mixture #2	No specific treatment.
Protection of first-aiders	:	AED Test Mixture #1	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
		AED Test Mixture #2	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	AED Test Mixture #1	Use dry chemical, CO_2, water spray (fog) or foam.
		AED Test Mixture #2	Use dry chemical, CO_2, water spray (fog) or foam.
Unsuitable extinguishing media	:	AED Test Mixture #1	Do not use water jet.
		AED Test Mixture #2	Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Section 5. Fire-fighting measures

Specific hazards arising from the chemical	:	AED Test Mixture #1	Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
		AED Test Mixture #2	Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous thermal decomposition products	:	AED Test Mixture #1	Decomposition products may include the following materials: carbon dioxide carbon monoxide
		AED Test Mixture #2	Decomposition products may include the following materials: carbon dioxide carbon monoxide

5.3 Advice for firefighters

Special protective actions for fire-fighters	:	AED Test Mixture #1	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
		AED Test Mixture #2	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters	:	AED Test Mixture #1	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
		AED Test Mixture #2	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : AED Test Mixture #1

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

AED Test Mixture #2

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : AED Test Mixture #1

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

AED Test Mixture #2

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : AED Test Mixture #1

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

AED Test Mixture #2

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : AED Test Mixture #1

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

AED Test Mixture #2

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an

Section 6. Accidental release measures

appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	:	AED Test Mixture #1	Put on appropriate personal protective equipment (see Section 8). Do not swallow. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
		AED Test Mixture #2	Put on appropriate personal protective equipment (see Section 8). Do not swallow. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	:	AED Test Mixture #1	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
		AED Test Mixture #2	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

: AED Test Mixture #1

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

AED Test Mixture #2

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations

: AED Test Mixture #1
Industrial applications, Professional applications.

AED Test Mixture #2
Industrial applications, Professional applications.

Industrial sector specific solutions

: AED Test Mixture #1
Not available.

AED Test Mixture #2
Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
AED Test Mixture #1	
2,2,4-trimethylpentane	**ACGIH TLV (United States, 1/2022). [Octane all isomers]** TWA: 300 ppm 8 hours.
dodecane	None.
Octane	**OSHA PEL 1989 (United States, 3/1989).** TWA: 300 ppm 8 hours. TWA: 1450 mg/m³ 8 hours. STEL: 375 ppm 15 minutes. STEL: 1800 mg/m³ 15 minutes. **NIOSH REL (United States, 10/2020).** TWA: 75 ppm 10 hours. TWA: 350 mg/m³ 10 hours. CEIL: 385 ppm 15 minutes. CEIL: 1800 mg/m³ 15 minutes. **ACGIH TLV (United States, 1/2022). [Octane all isomers]**

Section 8. Exposure controls/personal protection

	TWA: 300 ppm 8 hours. **OSHA PEL (United States, 5/2018).** TWA: 500 ppm 8 hours. TWA: 2350 mg/m³ 8 hours. **CAL OSHA PEL (United States, 5/2018).** STEL: 1800 mg/m³ 15 minutes. STEL: 375 ppm 15 minutes. TWA: 1450 mg/m³ 8 hours. TWA: 300 ppm 8 hours.
AED Test Mixture #2 2,2,4-trimethylpentane	**ACGIH TLV (United States, 1/2022). [Octane all isomers]** TWA: 300 ppm 8 hours.
dodecane	None.
Octane	**OSHA PEL 1989 (United States, 3/1989).** TWA: 300 ppm 8 hours. TWA: 1450 mg/m³ 8 hours. STEL: 375 ppm 15 minutes. STEL: 1800 mg/m³ 15 minutes. **NIOSH REL (United States, 10/2020).** TWA: 75 ppm 10 hours. TWA: 350 mg/m³ 10 hours. CEIL: 385 ppm 15 minutes. CEIL: 1800 mg/m³ 15 minutes. **ACGIH TLV (United States, 1/2022). [Octane all isomers]** TWA: 300 ppm 8 hours. **OSHA PEL (United States, 5/2018).** TWA: 500 ppm 8 hours. TWA: 2350 mg/m³ 8 hours. **CAL OSHA PEL (United States, 5/2018).** STEL: 1800 mg/m³ 15 minutes. STEL: 375 ppm 15 minutes. TWA: 1450 mg/m³ 8 hours. TWA: 300 ppm 8 hours.

Biological exposure indices

No exposure indices known.

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Section 8. Exposure controls/personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state	: AED Test Mixture #1	Liquid.
	AED Test Mixture #2	Liquid.
Color	: AED Test Mixture #1	Clear. Colorless.
	AED Test Mixture #2	Clear. Colorless.
Odor	: AED Test Mixture #1	Gasoline-like
	AED Test Mixture #2	Gasoline-like
Odor threshold	: AED Test Mixture #1	Not available.
	AED Test Mixture #2	Not available.
pH	: AED Test Mixture #1	Not available.
	AED Test Mixture #2	Not available.
Melting point/freezing point	: AED Test Mixture #1	-107°C (-160.6°F)
	AED Test Mixture #2	-107°C (-160.6°F)
Boiling point, initial boiling point, and boiling range	: AED Test Mixture #1	99.2°C (210.6°F)
	AED Test Mixture #2	99.2°C (210.6°F)
Flash point	: AED Test Mixture #1	Open cup: 4.5°C (40.1°F)
	AED Test Mixture #2	Open cup: 4.5°C (40.1°F)
Evaporation rate	: AED Test Mixture #1	Not available.
	AED Test Mixture #2	Not available.
Flammability	: AED Test Mixture #1	Not applicable.
	AED Test Mixture #2	Not applicable.

Section 9. Physical and chemical properties and safety characteristics

Lower and upper explosion limit/flammability limit :

AED Test Mixture #1	Lower: 1.1% Upper: 6%
AED Test Mixture #2	Lower: 1.1% Upper: 6%

Vapor pressure :

AED Test Mixture #1	5.5 kPa (41 mm Hg)
AED Test Mixture #2	5.5 kPa (41 mm Hg)

Relative vapor density :

AED Test Mixture #1	3.93 [Air = 1]
AED Test Mixture #2	3.93 [Air = 1]

Relative density :

AED Test Mixture #1	Not available.
AED Test Mixture #2	Not available.

Solubility(ies) :

Media	Result
AED Test Mixture #1	
water	Insoluble
AED Test Mixture #2	
water	Insoluble

Partition coefficient: n-octanol/water :

AED Test Mixture #1	Not applicable.
AED Test Mixture #2	Not applicable.

Auto-ignition temperature :

Ingredient name	°C	°F	Method
AED Test Mixture #1			
dodecane	200	392	-
Octane	206	402.8	-
AED Test Mixture #2			
dodecane	200	392	-
Octane	206	402.8	-

Decomposition temperature :

AED Test Mixture #1	Not available.
AED Test Mixture #2	Not available.

Viscosity :

AED Test Mixture #1	Not available.
AED Test Mixture #2	Not available.

Particle characteristics

Median particle size :

AED Test Mixture #1	Not applicable.
AED Test Mixture #2	Not applicable.

Section 10. Stability and reactivity

10.1 Reactivity :

AED Test Mixture #1	No specific test data related to reactivity available for this product or its ingredients.
AED Test Mixture #2	No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability :

AED Test Mixture #1	The product is stable.
AED Test Mixture #2	The product is stable.

10.3 Possibility of hazardous reactions :

AED Test Mixture #1	Under normal conditions of storage and use, hazardous reactions will not occur.
AED Test Mixture #2	Under normal conditions of storage and use, hazardous reactions will not occur.

Section 10. Stability and reactivity

10.4 Conditions to avoid : AED Test Mixture #1 — Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

AED Test Mixture #2 — Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

10.5 Incompatible materials : AED Test Mixture #1 — Reactive or incompatible with the following materials: oxidizing materials

AED Test Mixture #2 — Reactive or incompatible with the following materials: oxidizing materials

10.6 Hazardous decomposition products : AED Test Mixture #1 — Under normal conditions of storage and use, hazardous decomposition products should not be produced.

AED Test Mixture #2 — Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
AED Test Mixture #1				
2,2,4-trimethylpentane	LC50 Inhalation Vapor	Rat - Male, Female	>33.52 mg/l	4 hours
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
dodecane	LD50 Dermal	Rabbit - Male, Female	>5000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
Octane	LC50 Inhalation Vapor	Rat	118 g/m³	4 hours
	LC50 Inhalation Vapor	Rat	25260 ppm	4 hours
	LD50 Oral	Rat	>5000 mg/kg	-
AED Test Mixture #2				
2,2,4-trimethylpentane	LC50 Inhalation Vapor	Rat - Male, Female	>33.52 mg/l	4 hours
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
dodecane	LD50 Dermal	Rabbit - Male, Female	>5000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
Octane	LC50 Inhalation Vapor	Rat	118 g/m³	4 hours
	LC50 Inhalation Vapor	Rat	25260 ppm	4 hours
	LD50 Oral	Rat	>5000 mg/kg	-

Irritation/Corrosion

Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
AED Test Mixture #1					
dodecane	Skin - Moderate irritant	Rabbit	-	24 hours 0.05 Ml	-
	Skin - Moderate irritant	Rat	-	96 hours 300 uL	-
AED Test Mixture #2					
dodecane	Skin - Moderate irritant	Rabbit	-	24 hours 0.05 Ml	-
	Skin - Moderate irritant	Rat	-	96 hours 300 uL	-

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
AED Test Mixture #1			
2,2,4-trimethylpentane	Category 3	-	Narcotic effects
dodecane	Category 3	-	Respiratory tract irritation
Octane	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
AED Test Mixture #2			
2,2,4-trimethylpentane	Category 3	-	Narcotic effects
dodecane	Category 3	-	Respiratory tract irritation
Octane	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Name	Result
AED Test Mixture #1	
AED Test Mixture #1	ASPIRATION HAZARD - Category 1
2,2,4-trimethylpentane	ASPIRATION HAZARD - Category 1
dodecane	ASPIRATION HAZARD - Category 1
Octane	ASPIRATION HAZARD - Category 1
AED Test Mixture #2	
AED Test Mixture #2	ASPIRATION HAZARD - Category 1

Section 11. Toxicological information

2,2,4-trimethylpentane	ASPIRATION HAZARD - Category 1
dodecane	ASPIRATION HAZARD - Category 1
Octane	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : AED Test Mixture #1 — Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

AED Test Mixture #2 — Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact : AED Test Mixture #1 — No known significant effects or critical hazards.

AED Test Mixture #2 — No known significant effects or critical hazards.

Inhalation : AED Test Mixture #1 — Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

AED Test Mixture #2 — Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

Skin contact : AED Test Mixture #1 — Causes skin irritation.

AED Test Mixture #2 — Causes skin irritation.

Ingestion : AED Test Mixture #1 — Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

AED Test Mixture #2 — Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : AED Test Mixture #1 — Adverse symptoms may include the following:
pain or irritation
watering
redness

AED Test Mixture #2 — Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : AED Test Mixture #1 — Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

AED Test Mixture #2 — Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact : AED Test Mixture #1 — Adverse symptoms may include the following:
irritation
redness

AED Test Mixture #2 — Adverse symptoms may include the following:
irritation
redness

Ingestion : AED Test Mixture #1 — Adverse symptoms may include the following:
nausea or vomiting

AED Test Mixture #2 — Adverse symptoms may include the following:
nausea or vomiting

Section 11. Toxicological information

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	:	AED Test Mixture #1	No known significant effects or critical hazards.
		AED Test Mixture #2	No known significant effects or critical hazards.
Carcinogenicity	:	AED Test Mixture #1	No known significant effects or critical hazards.
		AED Test Mixture #2	No known significant effects or critical hazards.
Mutagenicity	:	AED Test Mixture #1	No known significant effects or critical hazards.
		AED Test Mixture #2	No known significant effects or critical hazards.
Reproductive toxicity	:	AED Test Mixture #1	No known significant effects or critical hazards.
		AED Test Mixture #2	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
AED Test Mixture #1					
Octane	N/A	N/A	N/A	118	N/A
AED Test Mixture #2					
Octane	N/A	N/A	N/A	118	N/A

Other information : AED Test Mixture #1 — Adverse symptoms may include the following: Repeated exposure may cause skin dryness or cracking.

AED Test Mixture #2 — Adverse symptoms may include the following: Repeated exposure may cause skin dryness or cracking.

Section 12. Ecological information

12.1 Toxicity

Not available.

12.2 Persistence and degradability

Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
AED Test Mixture #1			
2,2,4-trimethylpentane	-	-	Inherent
dodecane	-	-	Readily
Octane	-	-	Readily
AED Test Mixture #2			
2,2,4-trimethylpentane	-	-	Inherent
dodecane	-	-	Readily
Octane	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
AED Test Mixture #1			
2,2,4-trimethylpentane	4.08	231	Low
dodecane	6.98	239.88	Low
Octane	5.18	198.7	Low
AED Test Mixture #2			
2,2,4-trimethylpentane	4.08	231	Low
dodecane	6.98	239.88	Low
Octane	5.18	198.7	Low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Section 13. Disposal considerations

for additional handling information and protection of employees.

Section 14. Transport information

DOT / TDG / Mexico / IMDG / IATA : Not regulated.

Additional information

Remarks: De minimis quantities

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

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

U.S. Federal regulations : **TSCA 8(a) PAIR**: Tetraethyl silicate; triethyl phosphate

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

TSCA 8(c) calls for record of SAR: triethyl phosphate

Clean Water Act (CWA) 307: 1,2,4-Trichlorobenzene; nitrobenzene

Clean Water Act (CWA) 311: nitrobenzene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ (lbs)	SARA 302 TPQ (gallons)	SARA 304 RQ (lbs)	SARA 304 RQ (gallons)
AED Test Mixture #1 nitrobenzene	<0.1	Yes.	10000	999.5	1000	99.9
AED Test Mixture #2 nitrobenzene	<0.1	Yes.	10000	999.5	1000	99.9

SARA 304 RQ : 1449275.4 lbs / 657971 kg

SARA 311/312

Section 15. Regulatory information

Classification :

AED Test Mixture #1	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1
AED Test Mixture #2	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1

Composition/information on ingredients

Name	%	Classification
AED Test Mixture #1		
2,2,4-trimethylpentane	≥90	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1 HNOC - Static-accumulating flammable liquid
dodecane	≤5	FLAMMABLE LIQUIDS - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1 HNOC - Static-accumulating flammable liquid HNOC - Defatting irritant
Octane	≤4.8	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1 HNOC - Static-accumulating flammable liquid
AED Test Mixture #2		
2,2,4-trimethylpentane	≥90	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1 HNOC - Static-accumulating flammable liquid
dodecane	≤5	FLAMMABLE LIQUIDS - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1 HNOC - Static-accumulating flammable liquid HNOC - Defatting irritant
Octane	≤4.8	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1 HNOC - Static-accumulating flammable liquid

State regulations

Massachusetts : The following components are listed: ISOOCTANE; OCTANE

New York : The following components are listed: 2,2,4-Trimethylpentane

New Jersey : The following components are listed: ISOOCTANE; OCTANE

Pennsylvania : The following components are listed: PENTANE, 2,2,4-TRIMETHYL-; OCTANE

California Prop. 65

Section 15. Regulatory information

⚠ **WARNING**: This product can expose you to Nitrobenzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
AED Test Mixture #1 Nitrobenzene	-	-
AED Test Mixture #2 Nitrobenzene	-	-

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

Canada : Not determined.

China : Not determined.

Japan : **Japan inventory (CSCL)**: Not determined.
Japan inventory (ISHL): Not determined.

New Zealand : Not determined.

Philippines : Not determined.

Republic of Korea : Not determined.

Taiwan : Not determined.

Thailand : Not determined.

Turkey : Not determined.

United States : Not determined.

Viet Nam : Not determined.

Section 16. Other information

Procedure used to derive the classification

Section 16. Other information

Classification	Justification
AED Test Mixture #1	
FLAMMABLE LIQUIDS - Category 2	On basis of test data
SKIN IRRITATION - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
ASPIRATION HAZARD - Category 1	Expert judgment
AQUATIC HAZARD (ACUTE) - Category 1	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 1	Calculation method
AED Test Mixture #2	
FLAMMABLE LIQUIDS - Category 2	On basis of test data
SKIN IRRITATION - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
ASPIRATION HAZARD - Category 1	Expert judgment
AQUATIC HAZARD (ACUTE) - Category 1	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 1	Calculation method

History

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Version : 8.1

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

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