



SEPARATION SYSTEMS, INC.
Experts in Gas Chromatography
 100 Nightingale Lane US Sales: (850) 932-1433
 Gulf Breeze, Florida 32561 Fax: (850) 934-8642
 www.separationsystems.com

Material Safety Data Sheet
ASTM D-3710 Response Factor Standard
SD-007

Section 1. Chemical Product Identification

Product Part Number: ASTM D-3710 Response Factor Standard

Product Name: SD-007

Product Use	Determination of the boiling range distribution of gasoline by gas chromatographic simulated distillation
Synonym	Hydrocarbon Standard
Chemical Name	Mixture
Chemical Family	Hydrocarbons
CAS Req. No:	Mixture, see detail below.
Hazards	F, T, Xi
For non-emergency assistance, call: (850) 932-1433	

Section 2. Hazards Identification

Emergency Overview:

Physical Hazards: F - Highly flammable
 Health Hazards: T - Toxic
 Xi - Irritant

Acute Health Effects by Routes of Exposure	
Inhalation	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea, and headache
Skin	Can cause moderate skin irritation, defatting, and dermatitis; not likely to cause permanent damage
Eye	Can cause moderate irritation, tearing, and reddening, but not likely to permanently injure eye tissue
Ingestion	Irritating to mouth, throat, and stomach; can cause abdominal discomfort, nausea, vomiting, and diarrhea
Chronic Health Effects	
Carcinogenicity	No data
Reproductive and Developmental Toxicity	Contains a known human reproductive and/or developmental hazard
Inhalation	Upon prolonged exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea, and headache

Skin	Upon prolonged exposure, can cause moderate skin irritation, defatting, and dermatitis; not likely to cause permanent damage
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Section 3. Composition and Information on Ingredients

Substance Name	CAS #			
Hydrocarbon Standard	None			
Composition:				
Ingredient Name	Formula	CAS #	Percent	TLV (units)
Pentane	C ₅ H ₁₂	109-66-0	9.0	600 ppm
2-Methylpentane	C ₆ H ₁₄	107-54-3	8.0	500 ppm
n-Hexane	C ₆ H ₁₄	110-54-3	8.0	50 ppm
2,4-Dimethylpentane	C ₇ H ₁₆	108-08-7	7.0	N/A
n-Heptane	C ₇ H ₁₆	142-82-5	9.0	500 ppm
Toluene	C ₇ H ₁₆	108-88-3	10.0	100 ppm
n-Octane	C ₈ H ₁₈	111-65-9	7.0	300 ppm
n-Xylene	C ₈ H ₁₈	106-42-3	9.0	100 ppm
n-Propylbenzene	C ₉ H ₁₂	103-65-1	5.0	N/A
n-Decane	C ₁₀ H ₂₂	112-43-3	4.0	N/A
n-Butylbenzene	C ₁₀ H ₁₄	104-51-8	4.0	N/A
n-Dodecane	C ₁₂ H ₂₆	112-40-3	4.0	N/A
n-Tridecane	C ₁₃ H ₂₈	629-50-8	3.0	N/A
n-Pentadecane	C ₁₅ H ₃₂	629-62-9	3.0	N/A
n-Hexadecane	C ₁₆ H ₃₄	544-76-3	3.0	N/A
n-Heptadecane	C ₁₇ H ₃₆	629-78-7	3.0	N/A



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Section 4. First Aid Measures

INHALATION EXPOSURE

Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

SKIN CONTACT

Promptly wash skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

EYE EXPOSURE

Immediately flush eyes with plenty of water for at least 15 minutes. Occasionally lift the upper and lower lids. Get medical aid immediately. DO NOT allow victim to rub or keep eyes closed.

INGESTION

Never give anything by mouth to an unconscious person. Never attempt to make an unconscious person vomit. Do not induce vomiting. If victim is conscious and alert, give either 2 tablespoons of baking soda in a glass of water or 2 to 4 cupfuls of milk or water. Get medical aid immediately.

NOTES TO PHYSICIAN: EFFECTS MAY BE DELAYED. OBSERVE PATIENT.

Section 5: Fire Fighting Measures

FLAMMABLE HAZARDS

Flammable Hazards: Yes

FLASH POINT

-57°C (pentane)

EXPLOSION HAZARDS

Vapors are heavier than air and may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions. Forms explosive mixtures in air. May explode when heated.

FLAMMABILITY

LEL = 1.5; UEL 7.6

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.

Section 6. Accidental Release Measure

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Ventilate area. Take up with absorbent material.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

WASTE DISPOSAL

Comply fully with all applicable federal, state and local regulations.

Section 7. Handling and Storage

HANDLING

Wear NIOSH/OSHA approved respiratory protection, protective gloves, and protective glasses. Use only in well-ventilated area. User Exposure: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep container closed. Keep away from heat, sparks, and open flame.

SPECIAL REQUIREMENTS

Refrigerate in a sealed container. Keep away from heat, oxidizers and sources of ignition. Avoid eye or skin contact. Avoid breathing vapors.

Section 8. Exposure Controls/ Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Use only in a chemical fume hood. Local exhaust ventilation is recommended when generating excessive levels of vapors from handling or thermal processing. Engineering controls must be designed to meet the OSHA chemical specific standard in 29 CFR 1910.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

Eye: Chemical safety goggles. Do not wear contact lenses.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.



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Section 9: Physical and Chemical Properties

Property	Value
Appearance	Clear, Colorless
Odor	Gasoline like
BP/BP Range	35°C (initial)
MP/MP Range	NDA
Freezing Point	NDA
Vapor Pressure	426 mmHg (pentane)
SG/ Density	0.9 g/cm3
Evaporation Rate	NDA
Solubility (in water)	Slight
Evaporation Rate	NDA
Flash Point	-57°C (pentane)

NDA = No Data Available

Section 10. Stability and Reactivity

STABILITY

Stable: Stable.
Conditions to Avoid: Not established
Incompatibility: Strong Oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon Dioxide and possibly Carbon Monoxide

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11. Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
 Readily absorbed through skin.
Eye Contact: Causes eye irritation.
Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. Toxic if inhaled.
Ingestion: Harmful if swallowed.

EFFECTS OF OVEREXPOSURE

Effects of overexposure include, but are not limited to:
 Vapor is narcotic in high concentrations, irritates eyes, irritates nose and throat, pulmonary edema, headache, nausea, dizziness, gastrointestinal disturbances, depresses central nervous system, coma, liver damage, kidney damage

Component Toxicological Data			
<i>NIOSH</i>			
Chemical Name	CAS #	LD50	LC50
Toluene	108-88-3	N/A	N/A
Heptane	142-82-5	Oral LD50 Mouse 5000 mg/kg; Dermal LD50 Rabbit 3000 mg/kg	Inhalation LC50 Rat 103 g/m3 4 h
Iso-Pentane	78-78-4	N/A	Inhalation LC50 Rat 280000 mg/m3 4 h
Pentane	109-66-0	N/A	N/A
Hexane	110-54-3	Oral LD50 Rat 25 g/kg; Dermal LD50 Rabbit 3000 mg/kg	Inhalation LC50 Rat 48000 ppm 4 h
Octane	111-65-9	N/A	N/A
Decane	112-43-3	Inhalation LC50 Mouse 72300 mg/m3 2 h	; Oral LD50 Rat >5000 mg/kg; Dermal LD50 Rat >2000 mg/kg
Dodecane	112-40-3	N/A	Inhalation LC50 Rat >142 ppm 8 h
Tridecane	629-50-8	Oral LD50 Rat >5000 mg/kg; Dermal LD50 Rat >2000 mg/kg	N/A
Tetradecane	64036-86-8	Oral LD50 Rat >5000 mg/kg; Dermal LD50 Rat >5000 mg/kg	N/A

Component Carcinogenic Data			
<i>OSHA</i>			
Chemical Name	CAS #		
No data			
<i>ACGIH</i>			
Chemical Name	CAS #		
Toluene	108-88-3	A4- Not Classifiable as Human Carcinogen	
<i>NIOSH</i>			
Chemical Name			
No data			



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Section 12. Ecological Information

Possible moderate ecological hazard. This product may be dangerous to plants and/or wildlife. No data presently available.

Section 13. Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Section 14. Transport Information

	DOT	IATA
Proper Shipping Name	Flammable liquids, toxic	Flammable liquids, toxic
UN#	UN1992	UN1992
Hazard Class	3	3
Shipping Label	Flammable Liquid	Flammable Liquid
Packing Group:	Packing Group II	Packing Group II
DOT Reportable Quantity (lbs)	Not Established	Not Applicable
Regulated Substance	Not Applicable	Not Applicable

Section 15. Other Regulatory Information

US Classification and Label Text	
Indication of Danger	Flammable (USA) Highly Flammable (EU). Toxic.
Risk Statements	Irritating to eyes and skin. Toxic: danger of serious damage to health by prolonged exposure through inhalation. Possible risk of impaired fertility. Possible risk of harm to the unborn child.
Safety Statements	Keep away from sources of ignition – no smoking. Take precautionary measures against static discharges. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
US Statements	Readily absorbed through skin. Stench. Target organ(s): Eyes. Nerves. Calif. Prop. 65 developmental hazard.

US Regulatory Information	
SARA Listed	Yes
Notes	This product is subject to SARA section 313 reporting requirements
TSCA Inventory Item	Yes
California Prop-65	This product is or contains chemical(s) known to the state of California to cause developmental toxicity.

EU Directives Classification	
F	Highly Flammable
T	Toxic
Xi	Irritant

Risk Phrases	
R20/21	Harmful by inhalation and in contact with skin
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation
R11	Highly flammable

Safety Phrases	
S16	Keep away from sources of ignition- No smoking
S36/37/39	Wear suitable protective clothing, gloves, and eye protection

Section 16. Other Information

References: Not available.

Other Special Considerations: Not available.

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