Safety Data Sheet

Prepared according to GHS

1. Identification

Product Name	**E10 Gasoline**
Product Code	**5020/9802**
Recommended Use	***Fuel for spark ignition engines designed to run on unleaded fuel***
Company	American Refining Group, Inc. 77 North Kendall Avenue Bradford, PA 16701 www.amref.com msds@amref.com
Emergency Telephone Number(s)	Chemtrec 1-800-424-9300 (24 HRS) ARG: 814-368-1297 (24 HRS)

2. Hazards Identification

GHS Classification	Flammable Liquid Category 1 Eye Damage/Irritation Category 2B Skin Corrosion/Irritation Category 2 Aspiration Category 1 Specific Target Organ Toxicity Repeated or Prolonged Exposure 2 Carcinogenicity 2
Signal Word	DANGER!
Hazard Statements	Causes eye irritation Causes skin irritation Extremely flammable liquid and vapor May cause damage to liver, kidneys, thyroid and central nervous system through prolonged or repeated exposure by inhalation May be fatal if swallowed and enters airways Suspected of causing cancer
Other Hazard Information	Static accumulating liquid can become electrostatically charged even in bonded and grounded equipment Sparks may ignite liquid and vapor may cause flash fire. Liquid conductivity is <100 pS/m (picosiemans/meter) at 77°F
GHS Pictogram	
Precautionary Statements	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

2. Hazards Identification

Wear protective gloves/clothing/eye protection and face protection.
If exposed or concerned: Get medical advice/attention.
Wash thoroughly after handling.
Wear Protective gloves, chemical splash goggles, and face protection depending on process.
If on skin: wash with plenty of soap and water.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation occurs: get medical advice/attention.
Take off contaminated clothing and wash before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
Do not breathe vapors.
Get medical advice/attention if you feel unwell.
If swallowed: Immediately call a poison center or doctor.
Do NOT induce vomiting.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
In case of fire: Use foam to extinguish.
Keep container tightly closed.
Ground/Bond container and receiving equipment.
Use explosion proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

3. Composition / Information on Ingredients

CAS No.	Component	Common Name	Percent
68955-35-1	Naphtha, petroleum	Hydrotreated Distillate	60-70
64742-70-4	Naphtha, petroleum, isomerization	Isomerate	10-20
64-17-5	Ethyl Alcohol	Ethanol	9-10

Hazardous Constituent(s) Contained in Complex Substances

CAS No.	Component	Percent
108-88-3	Toluene	10-11
108-38-3	m-Xylene	5-6
109-66-0	i-Pentane	7-8
109-66-0	n-Pentane	8-9
95-47-6	o-Xylene	2-3
107-83-5	2-Methylpentane	5-6

95-63-6	1,2,4-Trimethylbenzene	2-3
106-42-3	p-Xylene	2-3
110-54-3	n-Hexane	6-7
96-14-0	3-Methylpentane	3-4
71-43-2	Benzene	1-2
106-97-8	n-Butane	2-3
589-34-4	3-Methylhexane	2-3
100-41-4	Ethylbenzene	1-2
620-14-4	1-Methyl-3-ethylbenzene	1-2
591-76-4	2-Methylhexane	1-2
142-82-5	n-Heptane	2-3
108-87-2	Methylcyclohexane	0.4
91-20-3	Naphthalene	0.1

4. First Aid Measures

Eyes Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if irritation develops.

Skin In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation develops.

Inhalation Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion DO NOT INDUCE VOMITING. If conscious, rinse out mouth with water. Seek medical attention immediately.

Symptoms(Acute and delayed) Exposure to high concentrations of vapors may cause irritation to the eyes, nose and throat, nausea, dizziness.

Note to Physicians No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire Fighting Measures

Suitable Extinguishing Media

Use dry chemical, CO_2, water spray (FOG) or foam

Unsuitable Extinguishing Media

Avoid solid water stream as it may scatter and spread fire.

Specific Hazards Arising from Chemical

Elevated temperatures can lead to the formation of irritating vapors. Decomposing products may include the following materials: Oxides of carbon, Smoke, Fume, Sulfur oxides, Aldehydes, Incomplete combustion products.

Extremely Flammable. Vapors are flammable and heavier than air. Vapors may travel across the ground and reach remote ignition sources causing a flashback fire danger.

5. Fire Fighting Measures

This product is a static accumulating liquid. Static accumulating liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor may cause flash fire. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminates. Restrict flow velocity to avoid build-up of static charge. Refer to NFPA 77, API 2003, and CENELEC CLC/TR 50404 for further guidance.

Protective Equipment and Precautions for Firefighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental Release Measures

Personal Precautions

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.

Environmental Precautions

Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods for Containment

Stop leak if without risk.

Methods for Cleanup

A vapor suppressing foam may be used to reduce vapors. Cover liquid spill with sand, earth or other noncombustible absorbent material. Cover powder spill with plastic sheet or tarp to minimize spreading. Pick up and transfer to properly labeled container

7. Handling and Storage

Handling Procedures

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. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Use non-sparking tools.

Shipping and Storing Procedures

Store in accordance with local regulations. Store in a segregated and approved area. Keep in the original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials. Do not store in unlabeled containers. Store and use away from heat, sparks, open flame or any other ignition source. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers that retain product residue may be hazardous.

Incompatibilities:

Oxidizing Agents

8. Exposure Controls / Personal Protection

Component Exposure Limits

Gasoline

8. Exposure Controls / Personal Protection

ACGIH TLV
TWA: 300 ppm
STEL: 500 ppm

Petroleum Naphtha
OSHA PEL: TWA: 500 ppm TWA 2000 mg/m3
NIOSH REL: TWA 350 mg/m3 Ceiling: 1800 mg/m3

Toluene
OSHA PEL Z2 (United States).
AMP: 500 ppm 10 minute(s). Issued/Revised: 6/1993
CEIL: 300 ppm Issued/Revised: 6/1993
TWA: 200 ppm 8 hour(s). Issued/Revised: 6/1993
ACGIH TLV (United States).
TWA: 20 ppm 8 hour(s). Issued/Revised: 11/2006

Xylene
ACGIH TLV (United States).
STEL: 651 mg/m³ 15 minute(s). Issued/Revised: 5/1996
STEL: 150 ppm 15 minute(s). Issued/Revised: 5/1996
TWA: 434 mg/m³ 8 hour(s). Issued/Revised: 5/1996
TWA: 100 ppm 8 hour(s). Issued/Revised: 5/1996
OSHA PEL (United States).
TWA: 435 mg/m³ 8 hour(s). Issued/Revised: 6/1993
TWA: 100 ppm 8 hour(s). Issued/Revised: 6/1993

Benzene
ACGIH TLV (United States). Absorbed through skin.
STEL: 8 mg/m³ 15 minute(s). Issued/Revised: 5/1997
STEL: 2.5 ppm 15 minute(s). Issued/Revised: 5/1997
TWA: 1.6 mg/m³ 8 hour(s). Issued/Revised: 5/1997
TWA: 0.5 ppm 8 hour(s). Issued/Revised: 5/1997
OSHA PEL (United States).
STEL: 5 ppm 15 minute(s). Issued/Revised: 6/1993
TWA: 1 ppm 8 hour(s). Issued/Revised: 6/1993
OSHA PEL Z2 (United States).
AMP: 50 ppm 10 minute(s). Issued/Revised: 6/1993
CEIL: 25 ppm Issued/Revised: 6/1993
TWA: 10 ppm 8 hour(s). Issued/Revised: 6/1993

Pentane
ACGIH TLV (United States).
TWA: 600 ppm 8 hour(s). Issued/Revised: 9/1998
OSHA PEL (United States).
TWA: 2950 mg/m³ 8 hour(s). Issued/Revised: 6/1993
TWA: 1000 ppm 8 hour(s). Issued/Revised: 6/1993

8. Exposure Controls / Personal Protection

Butane
ACGIH TLV (United States).
TWA: 1000 ppm 8 hour(s). Issued/Revised: 1/2004
OSHA PEL (United States).
TWA: State of Washington / Cal/OSHA : 800 ppm 8 hour(s).
STEL: 1000 ppm, (State of Washington) 15 minute(s).

Ethylbenzene
ACGIH TLV (United States).
STEL: 125 ppm 15 minute(s). Issued/Revised: 1/2002
TWA: 100 ppm 8 hour(s). Issued/Revised: 1/2002
OSHA PEL (United States).
TWA: 435 mg/m³ 8 hour(s). Issued/Revised: 6/1993
TWA: 100 ppm 8 hour(s). Issued/Revised: 6/1993

Trimethyl Benzene (all isomers)
ACGIH TLV: TWA: 25 ppm

n-Hexane
ACGIH TLV: TWA: 50 ppm
NIOSH REL: TWA: 50 ppm

n-Heptane
OSHA PEL: TWA 500 ppm
NIOSH REL: TWA 85 ppm
CEILING: 440 ppm [15-min]

Engineering Controls	This product is a static accumulating liquid. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Material should be handled in enclosed vessels and equipment. Use only in 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.
Eye/Face Protection	Chemical goggles and face shield.
Skin Protection	Chemical resistant, impervious gloves complying with an approved standard should be worn at all times. Coveralls, apron, and boots as necessary to minimize contact.
Respiratory Protection	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicated this is necessary. Respirator selection must be based on known or anticipated exposure levels.
General Hygiene	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.

9. Physical and Chemical Properties

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Please see the Product Specification Sheet for further information.

Appearance	Clear	**Flammability**	Not Available
Physical State	Liquid	**Upper/Lower Flammability Limits %**	Upper: 8 Lower: 1
Odor	Hydrocarbon Solvent	**Vapor Pressure (psi)**	9-13
Odor Threshold	Not Available	**Vapor Density**	Not Available
pH	Not Available	**Relative Density (lbs/gal)**	5.9
Melting/Freezing Point (°F)	Not Available	**Water Soluble**	No
Initial Boiling Point (°F)	>68 (from similar substances)	**Partition Coefficient: n-octanol/water**	Not Available
Boiling Range (°F)	68-437	**Auto-ignition Temperature (°F)**	482 (from similar substances)
Flash Point (°F)	-40 (from similar substances)	**Decomposition Temperature (°F)**	Not Available
Evaporation Rate	Not Available	**Viscosity (40°C mm^2/s)**	Not Available

10. Chemical Stability & Reactivity Information

Reactivity	Polymerization will not occur
Chemical Stability	Stable under normal conditions. If heated, product's static accumulation will rise and could cause flash fire.
Hazardous Reactions	None, under normal processing.
Conditions to Avoid	High temperatures, flames, sparks
Incompatibility	Halogens, Strong Acids, Alkalies, Strong oxidizers
Hazardous Decomposition Products	Smoke, carbon monoxide, carbon dioxide, aldehydes and other products of incomplete combustion.

11. Toxicological Information

Acute Exposure

Respiratory Irritation	No data available to indicate product causes respiratory irritation.
Eye Irritation	Causes eye irritation if product is splashed in eyes and is unwashed for 1 hour.
Skin Irritation	Causes moderate skin irritation.
Sensitization	Not expected to cause skin or respiratory sensitization.
Aspiration Hazards	If swallowed can be aspirated into lungs and cause chemical pneumonia, varying degrees of pulmonary injury or death. If swallowed, do NOT induce vomiting.

Chronic Exposure

Target Organ Effects	Repeated and prolonged inhalation causes liver and kidney damage in males and decreased white blood cell count in females.

Lowest Observable Adverse Effect Level (LOAEL): 8050 mg/m3
No Observable Adverse Effect Level (NOAEL): 1970 mg/m3

N-HEXANE: Prolonged and/or repeated exposures to n-Hexane can cause progressive and potentially irreversible damage to the peripheral nervous system (e.g. fingers, feet, arms, legs, etc.). Simultaneous exposure to Methyl Ethyl Ketone (MEK) or Methyl Isobutyl Ketone (MIBK) and n-Hexane can potentiate the risk of adverse effects from n-Hexane on the peripheral nervous system. n-Hexane has been shown to cause testicular damage at high doses in male rats. The relevance of this effect for humans is unknown.

ETHANOL: Prolonged or repeated exposure to high concentrations of ethanol vapor or overexposure by ingestion may produce adverse effects to brain, kidney, liver, and reproductive organs, birth defects in offspring, and developmental toxicity in offspring.

Carcinogenicity

This product contains cancer causing substances such as benzene and ethylbenzene. Risk of cancer depends on duration and level of exposure.

Benzene: Long-term overexposure to benzene has been associated with certain types of leukemia in humans. In addition, the International Agency for Research on Cancer (IARC), the National Toxicology Program, and OSHA consider benzene to be a human carcinogen. Chronic exposures to high levels of benzene have been reported to cause adverse blood effects including anemia. Benzene exposure can occur by inhalation and absorption through the skin. Inhalation and forced feeding studies of benzene in laboratory animals have produced a carcinogenic response in a variety of organs, including possibly leukemia, other adverse effects on the blood, chromosomal changes and some effects on the immune system. Exposure to benzene at levels up to 300 ppm did not produce birth defects in animal studies; however, exposure to higher dosage levels resulted in a reduction of body weight of the rat pups (fetotoxicity). Changes in the testes have been observed in mice exposed to benzene at 300 ppm, but reproductive performance was not altered in rats exposed to benzene at the same level. Aspiration of this material into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this material.

Ethylbenzene: The National Toxicology Program (NTP) conducted a 13-week inhalation study with male and female rats and mice at exposure concentrations ranging from 100 to 1000 ppm ethylbenzene. No rats or mice died during the study. Kidney, liver, and lung weights were increased in the exposed rats, while weight increases were observed only in the livers of exposed mice. Treatment-related histopathologic changes were not observed in any tissues of rats and mice. NTP also exposed male and female rats and mice by inhalation to 0, 75, 250, or 750 ppm ethylbenzene for 2 years. There was a statistically significant increase in the number of kidney tumors in male and female rats at 750 ppm. There were also increased incidences of lung tumors in male mice and liver tumors in female mice that were statistically significant at 750 ppm. Except for

the male rat kidney tumors, the incidence of the tumors were within the range observed for non-exposed animals from other studies conducted by NTP. The significance of these findings to humans is unknown. Ethylbenzene is not genotoxic. The International Agency for Research on Cancer (IARC) has evaluated ethylbenzene and found it to be possibly carcinogenic to humans (Group 2B).

Toluene: Aspiration of this material into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this material. Deliberate inhalation of high concentrations of toluene has been linked to damage of the brain, liver and kidney. Inhalation of very high concentrations of toluene, such as in cases of solvent abuse, has resulted in sudden death which may be a result of cardiac arrhythmia or central nervous system depression. Mental and/or growth retardation has been reported in children of women who deliberately inhale toluene during pregnancy (usually at thousands of ppm). Fetal developmental toxicity was observed when pregnant rats were exposed to toluene at levels of 1500 ppm. Maternal toxicity was also observed at this concentration. Prolonged, high level exposure to toluene in laboratory animals has resulted in hearing loss. Exposure studies in rats have resulted in adverse effects on the kidney, liver and central nervous system. Studies in occupationally exposed individuals indicate that toluene exposure has been associated with impaired color vision and decreased performance in some neurobehavioral tests. There are occupational studies which report an association between inhalation exposure to toluene and adverse effects on reproduction including spontaneous abortion. The methodology of these studies and the reliability of the results have been questioned. In a two generation study in rats, inhalation of toluene at levels up to 2000 ppm did not produce adverse effects on fertility or reproductive performance.

Xylene: Xylene has been reported to cause central nervous system effects at concentrations above the recommended exposure limit. Xylene vapor becomes irritating at relatively high levels. In one study, eye irritation was reported at exposures of 460 ppm and in one person at 230 ppm after 15 minutes. In another study, no one reported eyes, nose and throat irritation at mixed xylene exposures up to 230 ppm for 30 minutes. Dermal LD50 is expected to be greater than 10g/kg in rabbits, based on test results from similar materials.

NAPHTHALENE: Exposure to high concentrations of naphthalene may cause destruction of red blood cells, anemia, and cataracts. Naphthalene caused cancer in laboratory animal studies, but the relevance of these findings to humans is uncertain.

Mutagenicity No data available to indicate product or any components present at greater than .1% are mutagenic or genotoxic.

Reproductive Toxicity No data available to indicate either product or components present at greater than .1% that may cause reproductive toxicity.

Teratogenicity No data available to indicate product or any components contained at greater than .1% may cause birth defects.

Analysis – LD50 / LC50

Inhalation LC50 Rat	>5	mg/L (4 hr)
Oral LD50 Rat	>5000	mg/kg
Dermal LD50 Rabbit	>2000	mg/kg

12. Ecological Information

Component Analysis – 68955-35-1 - Ecotoxicity – Aquatic Life

Duration/Test/Species	**Concentration/Conditions**	
96 Hr LL50; WAF Aquatic Vertebrates	Not available	mg/L
48 hr EL50; WAF *Daphnia magna*	Not available	mg/L
72 hr Day EL-50 Fresh water algae	Not available	mg/L

Persistence & Degradability	Inherently Biodegradable
Bioaccumulation Potential	Not Available
Soil Mobility	Not Available
Other Adverse Effects	Not Available

13. Disposal Considerations

Disposal Instructions
The generation of waste should be avoided or minimized wherever possible. Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

14. Transportation Information

Emergency Response Guide No.	128	*North American Emergency Response Guide Book*			
	UN Number	Shipping Name (technical name)	Hazard Class	Packing Group	Placards/Label
U.S. DOT Bulk	1203	Gasoline	3	II	
U.S. DOT Non-Bulk	1203	Gasoline	3	II	

14. Transportation Information

IATA	1203	Gasoline	3	II	
IMDG	1203	Gasoline	3	II	

15. Regulatory Information

SARA Section 311 & 312 Classifications

Acute Hazard Yes
Chronic Hazard Yes
Fire Hazard Yes
Reactivity Hazard No

16. Other Information

US NFPA Ratings

Health	Fire	Reactivity
1*	4	0

HMIS Ratings

Health	Fire	Physical Hazards
1	4	0

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The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS