

# DEBUTANIZED AROMATIC CONCENTRATE (DAC)



## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Version: 1.1 Revision Date: 05/28/2015

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

### Product Identifier

**Product Form:** Mixture

**Product Name:** Debutanized Aromatic Concentrate (DAC)

**Synonyms:** DAC, Pyrolysis Gasoline

**CAS No.** 68476-45-9

### Intended Use of the Product

**Use of the Substance/Mixture:** For professional use only.

### Name, Address, and Telephone of the Responsible Party

#### **Company**

Williams, Olefins, L.L.C.  
PO Box 470  
Geismar, Louisiana 70734  
T 225+642-2100  
[ehs@williams.com](mailto:ehs@williams.com)

### Emergency Telephone Number

**Emergency number** : (888)253-4015, (225)642-2100; (800)424-9300 (CHEMTREC)

## SECTION 2: HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

#### **Classification (GHS-US)**

Flam. Liq. 1	H224
Acute Tox. 4 (Oral)	H302
Acute Tox. 3 (Inhalation:vapour)	H331
Skin Irrit. 2	H315
Eye Irrit. 2A	H319
Muta. 1B	H340
Carc. 1A	H350
Repr. 2	H361

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STOT SE 3	H335
STOT RE 1	H372
Asp. Tox. 1	H304
Aquatic Acute 2	H401
Aquatic Chronic 2	H411

**Label Elements**

**GHS-US Labeling**

**Hazard Pictograms (GHS-US)**



**Signal Word (GHS-US)**

: Danger

**Hazard Statements (GHS-US)**

- : H224 - Extremely flammable liquid and vapor  
H302 - Harmful if swallowed  
H304 - May be fatal if swallowed and enters airways  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H331 - Toxic if inhaled  
H335 - May cause respiratory irritation  
H340 - May cause genetic defects  
H350 - May cause cancer  
H361 - Suspected of damaging fertility or the unborn child  
H372 - Causes damage to organs through prolonged or repeated exposure  
H401 - Toxic to aquatic life  
H411 - Toxic to aquatic life with long lasting effects

**Precautionary Statements (GHS-US)**

- : P201 – Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking.  
P233 - Keep container tightly closed.  
P240 - Ground/bond container and receiving equipment.  
P241 - Use explosion-proof electrical, ventilating, lighting equipment.  
P242 - Use only non-sparking tools.  
P243 - Take precautionary measures against static discharge.  
P260 - Do not breathe vapor, mist, spray, gas.  
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P273 - Avoid release to the environment.  
P280 - Wear protective gloves, protective clothing, eye protection, face protection, respiratory protection.  
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.  
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.

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- P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 - If exposed or concerned: Get medical advice/attention.
- P311 - Call a POISON CENTER or doctor/physician.
- P312 - Call a POISON CENTER/doctor/physician if you feel unwell.
- P314 - Get medical advice and attention if you feel unwell.
- P321 - Specific treatment (see section 4).
- P330 - If swallowed, rinse mouth.
- P331 - If swallowed, do NOT induce vomiting.
- P332+P313 - If skin irritation occurs: Get medical advice/attention.
- P337+P313 - If eye irritation persists: Get medical advice/attention.
- P362 - Take off contaminated clothing and wash before reuse.
- P370+P378 - In case of fire: Use appropriate media for extinction.
- P391 - Collect spillage.
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 - Store in a well-ventilated place. Keep cool.
- P405 - Store locked up.
- P501 - Dispose of contents/container to local, regional, national, territorial, provincial, and international regulations.

**Other Hazards**

**Other Hazards Not Contributing to the Classification:** Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. Flammable vapors can accumulate in head space of closed systems. Do not puncture or incinerate container. Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Some substances contained within this product are unstable, may degrade or undergo hazardous polymerization when exposed to air, light or are not inhibited. Take appropriate precautions when using, storing, and transporting this material. Follow all applicable regulations. When heated to decomposition, emits toxic fumes, flammable gas.

**Unknown Acute Toxicity (GHS-US)** Not available

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS****Mixture**

NAME	PRODUCT IDENTIFIER	% (W/W)	CLASSIFICATION (GHS-US)
Hydrocarbons, C5-10 aromatic concentrate, ethylene-manufactured-by-product	(CAS No) 68476-45-9	100	Flam. Liq. 1, H224 Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Inhalation:vapour), H331 Skin Irrit. 2, H315 Eye Irrit. 2A, H319

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Contains	Product identifier	% (w/w)	Classification (GHS-US)
			Muta. 1B, H340 Carc. 1A, H350 Repr. 2, H361 STOT SE 3, H335 STOT RE 1, H372 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Benzene	(CAS No) 71-43-2	40 - 46	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Muta. 1B, H340 Carc. 1A, H350 STOT RE 1, H372 Asp. Tox. 1, H304 Aquatic Acute 2, H401
Dicyclopentadiene	(CAS No) 77-73-6	12 - 15	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Acute Tox. 2 (Inhalation:vapour), H330 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Acute 3, H402 Aquatic Chronic 2, H411
Toluene	(CAS No) 108-88-3	5.5 - 7.5	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 2, H401
Styrene	(CAS No) 100-42-5	3 - 5	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:vapour), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Carc. 2, H351 STOT SE 3, H335 STOT RE 1, H372 Asp. Tox. 1, H304

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Naphthalene	(CAS No) 91-20-3	2 - 3	Acute Tox. 4 (Oral), H302 Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Isoprene	(CAS No) 78-79-5	1 - 2	Flam. Liq. 1, H224 Muta. 2, H341 Carc. 1B, H350 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 3, H412
1,3-Butadiene	(CAS No) 106-99-0	0.4 - 1	Simple Asphy Flam. Gas 1, H220 Compressed gas, H280 Muta. 1B, H340 Carc. 1A, H350

More than one of the ranges of concentration prescribed by Controlled Products Regulations has been used where necessary due to varying composition. Full text of H-phrases: see section 16

## SECTION 4: FIRST AID MEASURES

### Description of First Aid Measures

**General:** Never give anything by mouth to an unconscious person. If exposed or concerned: Get medical advice/attention.

**Inhalation:** When symptoms occur: go into open air and ventilate suspected area. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.

**Skin Contact:** Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

**Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

**Ingestion:** Rinse mouth. Do NOT induce vomiting. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

### Most Important Symptoms and Effects Both Acute and Delayed

**General:** Causes damage to organs through prolonged or repeated exposure. May cause genetic defects. Suspected of damaging fertility or the unborn child. May cause cancer. Harmful if swallowed. Eye irritation. Toxic if inhaled. May be fatal if swallowed and enters airways.

**Inhalation:** Toxic if inhaled. Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

**Skin Contact:** Causes skin irritation. May be absorbed through the skin in harmful amounts.

**Eye Contact:** Causes serious eye irritation. Can cause blindness.

**Ingestion:** May be fatal if swallowed and enters airways. Swallowing a small quantity of this material will result in serious health hazard. Aspiration into the lungs can occur during ingestion or vomiting and may cause lung injury.

**Chronic Symptoms:** May cause damage to organs through prolonged or repeated exposure. May cause cancer. May damage fertility. May damage the unborn child. May cause heritable genetic damage.

**Indication of Any Immediate Medical Attention and Special Treatment Needed** If exposed or concerned, get medical advice and attention.

## SECTION 5: FIREFIGHTING MEASURES

### **NFPA 704 Hazard Class**

Health: 2 Flammability: 3 Instability: 0



0 (Minimal)  
1 (Slight)  
2 (Moderate)  
3 (Serious)  
4 (Severe)

### **Extinguishing Media**

**Suitable Extinguishing Media:** Foam, carbon dioxide, dry chemical.

**Unsuitable Extinguishing Media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

### **Special Hazards Arising From the Substance or Mixture**

**Fire Hazard:** Extremely flammable liquid and vapor.

**Explosion Hazard:** May form flammable/explosive vapor-air mixture.

**Reactivity:** Some substances contained within this product are unstable, may degrade or undergo hazardous polymerization when exposed to air, light or are not inhibited. Take appropriate precautions when using, storing, and transporting this material. Follow all applicable regulations.

### **Advice for Firefighters**

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Firefighting Instructions:** Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

**Protection during Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

**Hazardous Combustion Products:** May release flammable gases. May liberate toxic gases. Carbon oxides (CO, CO<sub>2</sub>). Acrid vapors. Black smoke.

**Other information:** Do not allow the product to be released into the environment. Do not allow run-off from fire fighting to enter drains or water courses.

### **Reference to Other Sections**

Refer to section 9 for flammability properties.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### **Personal Precautions, Protective Equipment and Emergency Procedures**

**General Measures:** Remove ignition sources. Use special care to avoid static electric charges. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Handle in accordance with good industrial hygiene and safety practice. Do not allow product to spread into the environment. Do NOT breathe (vapors, mist, spray). Do not get in eyes, on skin, or on clothing.

#### **For Non-Emergency Personnel**

**Protective Equipment:** Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel.

#### **For Emergency Personnel**

**Protective Equipment:** Equip cleanup crew with proper protection.

Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Ventilate area.

### **Environmental Precautions**

Prevent entry to sewers and public waters. Avoid release to the environment.

### **Methods and Material for Containment and Cleaning Up**

**For Containment:** Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

**Methods for Cleaning Up:** Clear up spills immediately and dispose of waste safely. Absorb and/or contain spill with inert material. Contact competent authorities after a spill. Use water spray to disperse vapors.

### **Reference to Other Sections**

See heading 8, Exposure Controls and Personal Protection.

## SECTION 7: HANDLING AND STORAGE

### **Precautions for Safe Handling**

**Additional Hazards When Processed:** Handle empty containers with care because residual vapors are flammable. Some substances contained within this product are unstable, may degrade or undergo hazardous polymerization when exposed to air, light or are not inhibited. Take appropriate precautions when using, storing, and transporting this material. Follow all applicable regulations. Do not pressurize, cut, or weld containers. When heated to decomposition, emits toxic fumes, extremely flammable gas.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Wash hands and forearms thoroughly after handling. Do not eat, drink or smoke when using this product. Always wash your hands immediately after handling this product, and once again before leaving the workplace.

### **Conditions for Safe Storage, Including Any Incompatibilities**

**Technical Measures:** Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Comply with applicable regulations.

**Storage Conditions:** Keep/Store away from direct sunlight, ignition sources, extremely high or low temperatures, and incompatible materials. Store in a well-ventilated place. Keep container tightly closed. Keep in fireproof place. Store locked up.

**Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers.

**Storage Area:** Store locked up. Store in a well-ventilated place. Keep cool.

**Specific End Use(s)** Not available

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters**

Chemical Name	ACGIH	OSHA	NIOSH
Dicyclopentadiene (77-73-6)	TWA: 5 ppm	PEL (TWA): 50 mg/m <sup>3</sup> PEL (TWA): 10 ppm	REL (TWA): 30 mg/m <sup>3</sup> REL (TWA): 5 ppm
Ethane Naphthalene (91-13-6)	TWA: 10 ppm STEL: 15 ppm	PEL (TWA): 50 mg/m <sup>3</sup> PEL (TWA): 10 ppm	REL (TWA): 50 mg/m <sup>3</sup> REL (TWA): 10 ppm REL (STEL): 75 mg/m <sup>3</sup> REL (STEL): 15 ppm IDLH: 250 ppm
Benzene (71-43-2)	TWA: .05 ppm STEL: 2.5 ppm	PEL (TWA): 1 ppm PEL (STEL): 5 ppm Ceiling: 25 ppm	REL (TWA): 0.1 ppm REL (STEL): 1 ppm IDLH: 500 ppm
Toluene (108-88-3)	TWA: 20 ppm	PEL (TWA): 200 ppm Ceiling: 300 ppm	REL (TWA): 375 mg/m <sup>3</sup> REL (TWA): 100 ppm REL (STEL): 560 mg/m <sup>3</sup> REL (STEL): 150 ppm IDLH: 500 ppm
Styrene (100-42-5)	TWA: 20 ppm STEL: 40 ppm	PEL (TWA): 100 ppm Ceiling: 200 ppm	REL (TWA): 215 mg/m <sup>3</sup> REL (TWA): 50 ppm REL (STEL): 425 mg/m <sup>3</sup> REL (STEL): 100 ppm IDLH: 700 ppm
1,3-Butadiene (106-99-0)	TWA: 2 ppm	PEL (TWA): 1 ppm PEL (STEL): 5 ppm	IDLH: 2000 ppm

**Note:** State province, local or other agencies or advisory groups may have established more stringent limits.

Consult an industrial hygienist or similar professional, or your local agencies, for further information.

**Exposure Controls**

**Appropriate Engineering Controls:** Proper grounding procedures to avoid static electricity should be followed. Ensure all national/local regulations are observed. Gas detectors should be used when flammable gases/vapours may be released. Use explosion-proof equipment. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas.

**Personal Protective Equipment:** Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



**Materials for Protective Clothing:** Chemically resistant materials and fabrics. Wear fire/flammable resistant/retardant clothing.

**Hand Protection:** Wear chemically resistant protective gloves.



**Eye Protection:** Chemical goggles or face shield.

**Skin and Body Protection:** Wear suitable protective clothing.

**Respiratory Protection:** Use a NIOSH-approved self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

**Thermal Hazard Protection:** Wear suitable protective clothing.

**Other Information:** When using, do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on Basic Physical and Chemical Properties

<b>Physical State</b>	: Liquid
<b>Appearance</b>	: Colorless to Amber
<b>Odor</b>	: Pungent, aromatic
<b>Odor Threshold</b>	: Not available
<b>pH</b>	: Not available
<b>Relative Evaporation Rate (butylacetate=1)</b>	: Not available
<b>Melting Point</b>	: Not available
<b>Freezing Point</b>	: Not available
<b>Boiling Point</b>	: 350 - 37.8 °C (95 – 100 °F)
<b>Flash Point</b>	: -11.1 °C (12 °F)
<b>Auto-ignition Temperature</b>	: 480 °C (896 °F)
<b>Decomposition Temperature</b>	: Not available
<b>Flammability (solid, gas)</b>	: Not available
<b>Lower Flammable Limit</b>	: 1.1 %
<b>Upper Flammable Limit</b>	: 8.0 %
<b>Vapor Pressure</b>	: 7.4 – 7.8 psig @ 37.8°C (100°F)
<b>Relative Vapor Density at 20 °C</b>	: 0.083 – 0.105 lbs/scf
<b>Relative Density</b>	: Not available
<b>Specific Gravity</b>	: 0.79 – 0.85 (water=1)
<b>Solubility</b>	: Insoluble in water
<b>Log Pow</b>	: Not available
<b>Log Kow</b>	: Not available
<b>Viscosity, Kinematic</b>	: Not available
<b>Viscosity, Dynamic</b>	: Not available

**Explosion Data – Sensitivity to Mechanical Impact** : Not available

**Explosion Data – Sensitivity to Static Discharge** : Not available

## SECTION 10: STABILITY AND REACTIVITY

**Reactivity:** Some substances contained within this product are unstable, may degrade or undergo hazardous polymerization when exposed to air, light or are not inhibited. Take appropriate precautions when using, storing, and transporting this material. Follow all applicable regulations.

**Chemical Stability:** Extremely flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

**Possibility of Hazardous Reactions:** Hazardous polymerization may occur.

**Conditions to Avoid:** Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks. Incompatible materials. Avoid ignition sources.

**Incompatible Materials :** Strong acids, strong bases, strong oxidizers, halogens, chlorine, halogenated hydrocarbons.

**Hazardous Decomposition Products:** Carbon oxides (CO, CO<sub>2</sub>). May release flammable gases. Acrid vapors. Black smoke. Toxic gases.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects - Product

**Acute Toxicity:** Harmful if swallowed. Toxic if inhaled.

**LD50 and LC50 Data** Not available

**Skin Corrosion/Irritation:** Causes skin irritation.

**Serious Eye Damage/Irritation:** Causes serious eye irritation.

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** May cause genetic defects.

**Teratogenicity:** Not available

**Carcinogenicity:** May cause cancer.

**Specific Target Organ Toxicity (Repeated Exposure):** Causes damage to organs through prolonged or repeated exposure.

**Reproductive Toxicity:** Suspected of damaging fertility or the unborn child.

**Specific Target Organ Toxicity (Single Exposure):** May cause respiratory irritation.

**Aspiration Hazard:** May be fatal if swallowed and enters airways.

**Potential Adverse Human Health Effects and Symptoms:** Toxic if inhaled. Harmful if swallowed.

**Symptoms/Injuries after Inhalation:** Toxic if inhaled. Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

**Symptoms/Injuries after Skin Contact:** Causes skin irritation. May be absorbed through the skin in harmful amounts.

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**Symptoms/Injuries after Eye Contact:** Causes serious eye irritation. Can cause blindness.

**Symptoms/Injuries after Ingestion:** May be fatal if swallowed and enters airways. Swallowing a small quantity of this material will result in serious health hazard. Aspiration into the lungs can occur during ingestion or vomiting and may cause lung injury.

**Chronic Symptoms:** May cause damage to organs through prolonged or repeated exposure. May cause cancer. May damage fertility. May damage the unborn child. May cause heritable genetic damage.

**Information on Toxicological Effects - Ingredient(s)****LD50 and LC50 Data**

HYDROCARBONS, C5-10 AROMATIC CONCENTRATE, ETHYLENE-MANUFACTURED-BY-PRODUCT (68476-45-9)	
LC50 Oral Rat	variable

DICYCLOPENTADIENE (77-73-6)	
LC50 Inhalation Rat	500 ppm (Exposure time: 4 h)
LD50 Dermal Rabbit	4380 mg/kg
LD50 Oral Rat	346.5 mg/kg

ISOPRENE (78-79-5)	
LC50 Inhalation Rat	180 mg/l (Exposure time: 4 h)
LD50 Dermal Rat	> 1 ml/kg
LD50 Oral Rat	2043 mg/kg
IARC Group	2B
National Toxicity Program (NTP) Status	Evidence of Carcinogenicity, Reasonably anticipated to be Human Carcinogen.

NAPHTHALENE (91-20-3)	
LC50 Inhalation Rat	> 340 mg/m <sup>3</sup> (Exposure time: 4 h)
LD50 Dermal Rabbit	> 20 g/kg
LD50 Oral Rat	533 – 710 mg/kg
ATE (oral)	533.0 mg/kg body weight
IARC Group	2B
National Toxicity Program (NTP) Status	Evidence of Carcinogenicity, Reasonably anticipated to be Human Carcinogen.

BENZENE (71-43-2)	
LC50 Inhalation Rat	13050 - 14380 ppm (Exposure time: 4 h)

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ATE (oral)	1800.0 mg/kg body weight
IARC Group	1
National Toxicity Program (NTP) Status	Evidence of Carcinogenicity, Known Human Carcinogens.

<b>TOLUENE (108-88-3)</b>	
ATE (oral)	636.0 mg/kg body weight
ATE (dermal)	8390.0 mg/kg body weight
ATE (dust, mist))	12.5 mg/l (Exposure time: 4 h)
IARC Group	3

<b>STYRENE (100-42-5)</b>	
LC50 Inhalation Rat	11.8 mg/l (Exposure time: 4 h)
ATE (oral)	1000.0 mg/kg
ATE (vapors)	11.8 mg/l (Exposure time: 4 h)
IARC Group	2B
National Toxicity Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.

<b>1,3-BUTADIENE (106-99-0)</b>	
LD50 Oral Rat	5480 mg/kg
LC50 Inhalation Rat	285 g/m <sup>3</sup> (Exposure time: 4 h)
IARC Group	1
National Toxicity Program (NTP) Status	Evidence of Carcinogenicity, Known Human Carcinogens.

## SECTION 12: ECOLOGICAL INFORMATION

### **GHS Classification:**

**Ecology - General:** Toxic to aquatic life with long lasting effects.

### **Toxicity:**

<b>HYDROCARBONS, C5-10 AROMATIC CONCENTRATE, ETHYLENE-MANUFACTURED-BY-PRODUCT (68476-45-9)</b>	
EC50 Other Aquatic Organisms 1	11 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata)

<b>DICYCLOPENTADIENE (77-73-6)</b>	
LC50 Fish 1	11.5 - 17.6 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 1	11 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 Other Aquatic Organisms 1	> 100 mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata)
LC 50 Fish 2	23 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus)

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ISOPRENE (78-79-5)	
LC50 Fish 1	32.5 - 50.15 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 1	140 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 Other Aquatic Organisms 1	> 1000 mg/l (Exposure time: 96 h - Species: Scenedesmus quadricauda)
LC 50 Fish 2	58.75 - 95.32 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])

NAPHTHALENE (91-20-3)	
LC50 Fish 1	5.74 - 6.44 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	2.16 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	1.6 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 Daphnia 2	1.96 mg/l (Exposure time: 48 h - Species: Daphnia magna [Flow through])

BENZENE (71-43-2)	
LC50 Fish 1	10.7 - 14.7 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	8.76 - 15.6 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Other Aquatic Organisms 1	29 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata)
LC 50 Fish 2	5.3 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 Daphnia 2	10 mg/l (Exposure time: 48 h - Species: Daphnia magna)

TOLUENE (108-88-3)	
LC50 Fish 1	15.22 - 19.05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	5.46 - 9.83 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Other Aquatic Organisms 1	> 433 mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata)
LC 50 Fish 2	12.6 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Daphnia 2	11.5 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 Other Aquatic Organisms 2	12.5 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])

STYRENE (100-42-5)	
LC50 Fish 1	3.24 - 4.99 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	3.3 - 7.4 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 Other Aquatic Organisms 1	1.4 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata)
LC 50 Fish 2	19.03 - 33.53 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Other Aquatic Organisms 2	0.72 mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata)
NOEC (acute)	44 mg/kg (Exposure time: 14 Days - Species: Eisenia foetida [soil dry weight])

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#### **Persistence and Degradability**

DEBUTANIZED AROMATIC CONCENTRATE (DAC)	
Persistence and Degradability	May cause long-term adverse effects in the environment.

#### **Bioaccumulative Potential**

DEBUTANIZED AROMATIC CONCENTRATE (DAC)	
Bioaccumulative Potential	Not established.

DICYCLOPENTADIENE (77-73-6)	
BCF fish 1	53
Log Pow	2.89

ISOPRENE (78-79-5)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	3.2 - 4.5 (at 20 °C)

NAPHTHALENE (91-20-3)	
BCF fish 1	30 - 430
Log Pow	3.3 (at 20 °C)

BENZENE (71-43-2)	
BCF fish 1	3.5 - 4.4
Log Pow	1.83

TOLUENE (108-88-3)	
Log Pow	2.65

STYRENE (100-42-5)	
BCF fish 1	13.5
Log Pow	2.95

1,3-BUTADIENE (106-99-0)	
BCF fish 1	13 - 19.1
Log Pow	1.85 (at 23 °C)

#### **Mobility in Soil** Not available

**Other Adverse Effects**

**Other Information:** Avoid release to the environment.

**SECTION 13: DISPOSAL CONSIDERATIONS**

**Waste Disposal Recommendations:** Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

**Additional Information:** Handle empty containers with care because residual vapors are flammable. Empty gas cylinders should be returned to the vendor for recycling or refilling.

**Ecology – Waste Materials:** This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

**SECTION 14: TRANSPORT INFORMATION**

**UN Number**

**UN-No.(DOT):** 1268

**DOT NA no.:** 1268

**UN Proper Shipping Name**

**DOT Proper Shipping Name** : UN 1268 Petroleum products, n.o.s. (Benzene, Dicyclopentadiene)

**Hazard Class** : 3

**Identification Number** : UN1268

**Hazard Labels (DOT)** : 3 - Flammable liquid



**Packing Group** : I

**Marine Pollutant** : Marine Pollutant

**DOT Packaging Exceptions (49 CFR 173.xxx)** : 150

**DOT Packaging Non Bulk (49 CFR 173.xxx)** : 201

**DOT Packaging Bulk (49 CFR 173.xxx)** : 243

**Additional Information**

**Emergency Response Guide (ERG) Number** : 115

**Transport by sea**

**DOT Vessel Stowage Location** : E - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length, but is prohibited from carriage on passenger vessels in which the limiting number of passengers is exceeded.

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#### Air transport

DOT Quantity Limitations Passenger Aircraft/Rail (49 CFR 173.27) : 1 L

DOT Quantity Limitations Cargo Aircraft Only (49 CFR 175.75) : 30 L

## SECTION 15: REGULATORY INFORMATION

### US Federal Regulations

DEBUTANIZED AROMATIC CONCENTRATE (DAC)	
<b>SARA Section 311/312 Hazard Classes</b>	Delayed (chronic) health hazard Fire hazard Immediate (acute) health hazard Reactive hazard
HYDROCARBONS, C5-10 AROMATIC CONCENTRATE, ETHYLENE-MANUFACTURED-BY-PRODUCT (68476-45-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
DICYCLOPENTADIENE (77-73-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
<b>EPA TSCA Regulatory Flag</b>	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.
<b>SARA Section 313 - Emission Reporting</b>	1.0 %
ISOPRENE (78-79-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
<b>SARA Section 313 - Emission Reporting</b>	0.1 %
NAPHTHALENE (91-20-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
<b>EPA TSCA Regulatory Flag</b>	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.
<b>RQ (Reportable Quantity, Section 304 of EPA's List of Lists):</b>	100 lb
<b>SARA Section 313 - Emission Reporting</b>	0.1 %
BENZENE (71-43-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
<b>RQ (Reportable Quantity, Section 304 of EPA's List of Lists):</b>	10 lb
<b>SARA Section 313 - Emission Reporting</b>	0.1 %



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<b>TOLUENE (108-88-3)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
<b>RQ (Reportable Quantity, Section 304 of EPA's List of Lists):</b>	1000 lb
<b>SARA Section 313 - Emission Reporting</b>	1.0 %
<b>STYRENE (100-42-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
<b>SARA Section 313 - Emission Reporting</b>	0.1 %

<b>1,3-BUTADIENE (106-99-0)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
<b>SARA Section 313 - Emission Reporting</b>	0.1 %

### Canadian Regulations

<b>DEBUTANIZED AROMATIC CONCENTRATE (DAC)</b>	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class F - Dangerously Reactive Material
	

<b>HYDROCARBONS, C5-10 AROMATIC CONCENTRATE, ETHYLENE-MANUFACTURED-BY-PRODUCT (68476-45-9)</b>
Listed on Non-Domestic Substances List (NDSL)

<b>DICYCLOPENTADIENE (77-73-6)</b>	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class B Division 2 - Flammable Liquid

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<b>ISOPRENE (78-79-5)</b>	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects

<b>NAPHTHALENE (91-20-3)</b>	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class B Division 4 - Flammable Solid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects

<b>BENZENE (71-43-2)</b>	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects

<b>TOLUENE (108-88-3)</b>	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects

<b>STYRENE (100-42-5)</b>	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class F - Dangerously Reactive Material

<b>1,3-BUTADIENE (106-99-0)</b>	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class F - Dangerously Reactive Material

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

## SECTION 16: OTHER INFORMATION

**Revision date** : 05/28/2015

**Other Information** : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

### GHS Full Text Phrases:

Acute Tox. 2 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 2
Acute Tox. 3 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 3
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Asp. Tox. 1	Aspiration hazard Category 1
Carc. 1A	Carcinogenicity Category 1A
Carc. 1B	Carcinogenicity Category 1B
Carc. 2	Carcinogenicity Category 2
Compressed gas	Gases under pressure Compressed gas
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Gas 1	Flammable gases Category 1
Flam. Liq. 1	Flammable liquids Category 1
Flam. Liq. 2	Flammable liquids Category 2
Flam. Liq. 3	Flammable liquids Category 3
Muta. 1B	Germ cell mutagenicity Category 1B
Muta. 2	Germ cell mutagenicity Category 2
Repr. 2	Reproductive toxicity Category 2
Simple Asphy	Simple Asphyxiant
Skin Irrit. 2	Skin corrosion/irritation Category 2

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STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H224	Extremely flammable liquid and vapor
H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H280	Contains gas under pressure; may explode if heated
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H319	Causes serious eye irritation
H330	Fatal if inhaled
H331	Toxic if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects
H341	Suspected of causing genetic defects
H350	May cause cancer
H351	Suspected of causing cancer
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

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### Guide to Abbreviations:

ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

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