PRODUCT NAME: **ABRO Octane Booster**
PRODUCT NUMBER/SIZE: **OB-506 / 12 oz.** **Revision Date: 04/16/2015**

SECTION 1
Identification of the Substance and of the Company/Undertaking

MANUFACTURER'S NAME: **ABRO INDUSTRIES, INC.**

ADDRESS: **3580 Blackthorn Court**
South Bend, IN 46628
USA

PRODUCT DESCRIPTION: **Fuel Additive**

COMPANY PHONE: **574-232-8289**

EMERGENCY 24-HR TELEPHONE: **Chemtrec: US/Canada 1-800-424-9300**
International +1-703-527-3887

SECTION 2
Hazards Identification

Classification:
Flammable Liquids - Category 4 (Combustible)
Acute Toxicity, Inhalation - Category 4
Skin Irritation – Category 2
Eye Irritation – Category 2B
Carcinogenicity - Category 2
Specific Target Organ Toxicity (Single Exposure) – Category 3
Aspiration Hazard – Category 1
Chronic Aquatic Toxicity – Category 2

Label Pictogram(s):

Signal Word: Danger

Hazard Phrases: Flammable liquid and vapor. Harmful if inhaled. Causes skin irritation. Causes eye irritation. Suspected of causing cancer. Suspected of causing genetic defects. May cause respiratory irritation. May cause drowsiness or dizziness. May be fatal if swallowed and enters airways. Harmful to aquatic life.

Precautionary Phrases: Keep away from heat/sparks/open flames/hot surfaces. No smoking. 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. Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing fume/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Wash

hands and forearms thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid release to the environment.

Response: In case of fire: Use water spray, fog or foam. If on skin (or hair): Wash with plenty of soap and water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor if you feel unwell. 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. If exposed or concerned: Get medical advice/attention. If swallowed: Immediately all a poison center or doctor/physician if you feel unwell. Do NOT induce vomiting.

Storage / Disposal: Store in a well-ventilated place. Keep cool. Store locked up. Keep container tightly closed. Dispose of contents/container in accordance with local/regional/national/international regulations.

Other: Keep out of reach of children. Read label before use.
If medical advice is needed, have product container or label at hand.

SECTION 3
Composition/Information on Ingredients

COMPONENTS	CAS Number	Percent by weight
Fuel oil, no. 2	68476-30-2	~99.0 %
Manganese, Tricarbonyl methylcyclopentadienyl	12108-13-3	0.17 -0.29 %
Paraffins (petroleum), normal C5-C20	64771-72-8	0.1 -0.2 %
Solvent naphtha (petroleum), Heavy arom	64742-94-5	0.08 -0.17 %
Xylene (mixed isomers)	1330-20-7	0.07 -0.14 %
Ethylbenzene	100-41-4	< 0.034 %
Naphthalene	91-20-3	0.013 -0.51 %
Hydrotreated light distillate (petroleum)	64742-47-8	0.007 -0.034 %`
1,2,4-Trimethylbenzene	95-63-6	0.003 -0.014 %
Manganese, Tricarbonyl(.eta.5-2,4-cyclopentadien-1-yl)-	12079-65-1	0.001 -0.003 %
1,3,5-Trimethylbenzene	108-67-8	< 0.001 %

SECTION 4
First Aid Measures

First Aid Measures

Immediate Medical Attention: If ingested this material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

Eyes Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. GET IMMEDIATE MEDICAL ATTENTION.

Skin Immediately wash exposed skin with plenty of soap and water while removing contaminated clothing and shoes. Get medical attention if irritation persists. Place contaminated clothing in closed container until cleaned or discarded. If

	clothing is to be laundered, inform the person performing the operation of contaminant's hazardous properties.
Ingestion	Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to an unconscious person. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.
Inhalation	Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear and give oxygen. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.
Signs & Symptoms Of Over Exposure:	No data available.
Special Treatment:	Provide general supportive measures and treat symptomatically.

SECTION 5
Fire Fighting Measures

Extinguishing media	For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.
Hazardous Combustion:	Combustion produces carbon oxides, nitrogen oxides, aldehydes, aromatic and other hydrocarbons. Some metallic oxides may produce. Combustion also produces carbon monoxide, aldehydes, aromatic and other hydrocarbons.
Protective Equipment and Precautions for firefighters:	Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Keep run-off water out of sewers and water sources.
Flammability per Flame Projection Test	No information available.

SECTION 6
Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:	Chemical splash goggles. Chemical-resistant protective suit. Boots. Chemical-resistant gloves. Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product. Suggested protective clothing might not be adequate. Consult a specialist before handling this product. CAUTION: The protection provided by air-purifying respirators is limited. Use a positive pressure air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are not known, or if

concentrations exceed the protection limits of air-purifying respirator.

Methods/materials for containment and cleanup:

Large Spill:
Stop leak if without risk. Eliminate all ignition sources. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Small Spill:
Stop leak if without risk. Eliminate all ignition sources. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

Environmental precautions:

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).

SECTION 7
Handling and Storage

Precautions for Safe Handling

Isolate from sources of heat, sparks, and open flame. Open container in a well-ventilated area. Avoid breathing vapors and thermal decomposition products. Keep containers closed when not in use. Vapors are heavier than air and will tend to accumulate in low areas. Avoid use in confined areas without adequate ventilation. Areas of inadequate ventilation could contain concentrations high enough to cause eye irritation, headaches, respiratory discomfort or nausea. Carefully evaluate processes using this product at elevated temperatures to ensure safe operating conditions. Electrostatic buildup may occur when pouring or transferring this product from its container.

Conditions for Safe Storage

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. 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.

ABRO INDUSTRIES, INC.

SECTION 8
Exposure Controls/Personal Protection

COMPONENTS	CAS Number	OSHA PEL	ACGIH TWA (TLV)	OTHER LIMITS
Fuel oil, no. 2	68476-30-2	No data.	100 mg/m^3	No data.
Manganese, Tricarbonyl methylcyclopentadienyl	12108-13-3	No data.	0.2 mg/m^3	No data.
Paraffins (petroleum), normal C5-C20	64771-72-8	No data.	No data.	No data.
Solvent naphtha (petroleum), Heavy arom	64742-94-5	No data.	No data.	No data.
Xylene (mixed isomers)	1330-20-7	100 ppm	100 ppm STEL 150 ppm	No data.
Ethylbenzene	100-41-4	100 ppm	100 ppm STEL 125 ppm	No data.
Naphthalene	91-20-3	10 ppm	10 ppm STEL 15 ppm	No data.
Hydrotreated light distillate (petroleum)	64742-47-8	No data.	200 mg/m^3	No data.
1,2,4-Trimethylbenzene	95-63-6	No data.	No data.	No data.
Manganese, Tricarbonyl(.eta.5-2,4-cyclopentadien-1-yl)-	12079-65-1	No data.	0.1 mg/m^3	No data.
1,3,5-Trimethylbenzene	108-67-8	No data.	No data.	No data.

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 or vapor concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Local or general exhaust required when using at elevated temperatures that generate vapors or mists.

Personal Protective Equipment:

Skin Neoprene, nitrile, polyvinyl alcohol (PVA), polyvinyl chloride and polyurethane gloves to prevent skin contact. No special protective clothing is normally required. Select protective clothing depending on industrial operations

Eyes No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields.

Respiratory Use approved organic vapor chemical cartridge or supplied air respirators when material produces vapors that exceed permissible limits or excessive vapors are generated. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 1910.134. Self-contained breathing apparatus should be used for firefighting.

Work/Hygienic/Maintenance Practices	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.

SECTION 9
Physical and Chemical Properties

Appearance and Physical State:	Clear Red Liquid
Odor:	Petroleum.
Odor Threshold:	Not Available.
pH:	Not Available
Melting Point/Freezing Point:	Not Available
Initial boiling point & boiling range:	Not Available
Flash Point:	> 140.00 F (60.0 C) Pensky-Marten Closed Cup
Evaporation rate:	Not Available.
Flammability (solid, gas)	Not Available.
Upper/lower flammability or explosive limits	Not Available.
Vapor pressure	Not Available.
Vapor density	Not Available.
Relative density	6.74 - 7.29 at 60.0 F (15.6 C)
Specific gravity	0.808 - 0.875 at 60.0 F (15.6 C)
Solubility	Insoluble
Partition Coefficient n-Octanol/Water	Not Available.
Auto-ignition Temperature:	Not Available.
Decomposition Temperature:	Not Available.
Viscosity:	Not Available.
%-VOC Content:	Not Available.
CARB VOC Category/Standard (%)	Not Available.
OTC Model Rule Category/Standard (%)	Not Available.
US EPA Cons Prod Category/Standard (%)	Not Available.
Weight per gallon	Not Available.
Solids in weight %	Not Available.

SECTION 10
Stability and Reactivity

Reactivity	Hazardous reactions will not occur.
Chemical Stability:	Product is stable
Possibility of hazardous reactions:	None known.
Conditions to avoid (e.g. static discharge, shock or vibration):	Excessive heat, sources of ignition and open flames. The product is stable. Methylcyclopentadienyl Manganese Tricarbonyl (MMT) is extremely photosensitive and decomposes rapidly when exposed to light. Photolytic action converts the organic compound to a mixture of non-hazardous manganese oxides, carbonates and organics derived

	from methylcyclopentadiene. These decomposition products are less toxic than the neat MMT. MMT photolyses rapidly in water.
Incompatibilities:	Strong oxidizers such as nitrates, perchlorates, chlorine, fluorine.
Hazardous decomposition products:	Combustion produces carbon oxides, nitrogen oxides, aldehydes, aromatic and other hydrocarbons. Some metallic oxides may produce.
Hazardous polymerization:	Hazardous polymerization will not occur under routine use.

SECTION 11
Toxicological Information

Likely Routes of Exposure: Skin contact, inhalation.

Symptoms: No data available

Delayed and Immediate Effects: No data available.

Chronic Effects: No data available.

Toxicological Information:
MIDDLE DISTILLATES, PETROLEUM: Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The relevance of these findings to humans is not clear at this time.

MIDDLE DISTILLATES WITH CRACKED STOCKS: Light cracked distillates have been shown to be carcinogenic in animal tests and have tested positive with in vitro genotoxicity tests. Repeated dermal exposures to high concentrations in test animals resulted in reduced litter size and litter weight, and increased fetal resorptions at maternally toxic doses. Dermal exposure to high concentrations resulted in severe skin irritation with weight loss and some mortality. Inhalation exposure to high concentrations resulted in respiratory tract irritation, lung changes/infiltration/accumulation, and reduction in lung function.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, in-depth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings

from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.

DIESEL EXHAUST: Chronic inhalation studies of whole diesel engine exhaust in mice and rats produced a significant increase in lung tumors. Combustion of kerosene and/or diesel fuels produces gases and particulates which include carbon monoxide, carbon dioxide, oxides of nitrogen and/or sulfur and hydrocarbons. Significant exposure to carbon monoxide vapors decreases the oxygen carrying capacity of the blood and may cause tissue hypoxia via formation of carboxyhemoglobin.

XYLENE: Dermal absorption of Xylene in animals causes narcosis. Toxic effects described in animals by inhalation include upper respiratory irritation; central nervous system effects; behavioral effects; decreased weight gain; hearing loss; and effects on the blood, liver, kidneys, heart, spleen, lungs and bone marrow. By ingestion, xylene caused central nervous system effects; decreased body weight and liver effects. Tests of xylene in animals demonstrate no carcinogenic activity. Xylene does not produce heritable genetic damage in animals or genetic damage in bacterial or mammalian cell cultures. Although abnormal sperm were observed after an interperitoneal injection in rats, xylene did not produce reproductive effects. Developmental toxicity was observed in animals exposed to xylene but only at concentrations that were maternally toxic.

Methylcyclopentadienyl Manganese Tricarbonyl (MMT): Adverse symptoms may include: This product contains MMT. A 90 day chronic inhalation study of MMT indicated that 3 mg/m3 of MMT showed detectable effects in mice. The lungs appear to be the organ most sensitive to MMT both acutely and chronically.

Trimethylbenzenes: Adverse symptoms may include: This product contains Trimethylbenzenes. Literature data indicate that long-term inhalation exposure causes blood effects in laboratory animals.

CAS# 68476-30-2: Acute toxicity, LD50, Oral, Rat, 12.00 GM/KG. Results: Behavioral: Ataxia. Gastrointestinal:Hypermotility, diarrhea. Nutritional and Gross Metabolic:Weight loss or decreased weight gain. - Advances in Modern Environmental Toxicology., Senate Press, Inc., P.O. Box 252, Princeton Junction, NJ 08550, Vol/p/yr: 6,1, 1984

CAS# 12108-13-3: Acute toxicity, LD50, Oral, Rat, 8.000 MG/KG. Results: Behavioral: Convulsions or effect on seizure threshold. Behavioral: Excitement. Lungs, Thorax, or Respiration:Cyanosis. - "The Toxicology of Methylcyclopentadienyl Manganese Tricarbonyl,", Witherup, S., et al., Univ. of Cincinnati, Cincinnati, OH, Vol/p/yr: -,-, 1976

CAS# 64742-94-5: Acute toxicity, LC50, Inhalation, Rat, 590.0 MG/M3, 4 H. Results: Effects on Newborn: Growth statistics (e.g., reduced weight gain). - National Technical Information Service, Vol/p/yr: OTS0534724,

CAS# 1330-20-7: Acute toxicity, LD50, Oral, Rat, 4300. MG/KG. Results: Liver: Other changes. Kidney, Ureter, Bladder: Other changes. - AMA Archives of Industrial Health., For publisher information, see AEHLAU, Chicago, IL, Vol/p/yr: 14,387, 1956

CAS# 100-41-4: Acute toxicity, LD50, Oral, Rat, 3500. MG/KG. Results: Liver: Other changes. Kidney, Ureter, Bladder: Other changes. - AMA Archives of Industrial Health., For publisher information, see AEHLAU, Chicago, IL, Vol/p/yr: 14,387, 1956

CAS# 91-20-3: Acute toxicity, LD50, Oral, Rat, 490.0 MG/KG. Results: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Blood: Lymphomas including Hodgkin's disease. Tumorigenic Effects: Uterine tumors. - Toxicometric Parameters of Industrial Toxic Chemicals Under Single Exposure, Izmerov, N.F., et al., Centre of International Projects, GKNT, Moscow Russia, Vol/p/yr: -,89,

1982

CAS# 95-63-6: Acute toxicity, LD50, Oral, Rat, 5.000 GM/KG. Results: Maternal Effects: Other effects. Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). - Prehled Prumyslove Toxikologie, Marhold, J., Organicke Latky, Prague Czechoslovakia, Vol/p/yr: -,34, 1986

CAS# 108-67-8: Acute toxicity, LC50, Inhalation, Rat, 24.00 GM/M3, 4 H. Results: Behavioral: Change in motor activity (specific assay). Behavioral: Analgesia. Behavioral: Alteration of operant conditioning. - Gigiena i Sanitariya, Mezhdunarodnaya Kniga, ul. B. Yakimanka, 39, 113095, Moscow 113095 Russia, Vol/p/yr: 44(5),15, 1979

Irritation or Corrosion
Occasional skin contact with this product is not expected to have serious effects, but good personal hygiene should be practiced and repeated skin contact avoided. This product can also be expected to produce skin irritation upon prolonged or repeated skin contact. Personal hygiene measures taken to prevent skin irritation are expected to be adequate to prevent risk of skin cancer

Carcinogen Information:
The International Agency for Research on Cancer (IARC) has determined that there is inadequate evidence for the carcinogenicity of diesel fuel/fuel oil in humans. IARC determined that there was limited evidence for the carcinogenicity of marine diesel fuel in animals. Distillate (light) diesel fuels were not classifiable as to their carcinogenicity to humans (Group 3A).

IARC has determined that there is sufficient evidence for the carcinogenicity in experimental animals of diesel engine exhaust and extracts of diesel engine exhaust particles. IARC determined that there is only limited evidence for the carcinogenicity in humans of diesel engine exhaust. However, IARC's overall evaluation has resulted in the IARC designation of diesel engine exhaust as probably carcinogenic to humans (Group 2A) because of the presence of certain engine exhaust components.

The International Agency for Research on Cancer (IARC) has also determined that there is sufficient evidence for the carcinogenicity in experimental animals of light and heavy vacuum distillates, of light and heavy catalytically cracked distillates and of cracked residues (including heavy thermocracked distillates/residues) derived from the refining of crude oil.

The International Agency for Research on Cancer (IARC) and the Environmental Protection Agency (EPA) have determined that naphthalene is a possible human carcinogen.

Ethylbenzene has been classified by the Internal Agency for Research of Cancer (IARC) as possibly carcinogenic to humans (Group 2B). This IARC classification was based upon limited evidence of carcinogenicity to animals and inadequate evidence of carcinogenicity to humans.

Xylene has been classified by the Internal Agency for Research of Cancer (IARC) as not classifiable to its carcinogenicity to humans (Group 3) This IARC classification was based on inadequate evidence for the carcinogenicity of petroleum solvents in humans and in experimental animals.

Carcinogenicity: NTP? Yes IARC Monographs? Yes OSHA Regulated? No

COMPONENTS	CAS Number	NTP	IARC	ACGIH	OSHA
Fuel oil, no. 2	68476-30-2	n.a.	2B	A3	n.a.
Manganese, Tricarbonyl methylcyclopentadienyl	12108-13-3	n.a.	n.a.	n.a.	n.a.

Paraffins (petroleum), normal C5-C20	64771-72-8	n.a.	n.a.	n.a.	n.a.
Solvent naphtha (petroleum), Heavy arom	64742-94-5	n.a.	n.a.	n.a.	n.a.
Xylene (mixed isomers)	1330-20-7	n.a.	3	A4	n.a.
Ethylbenzene	100-41-4	n.a.	2B	A3	n.a.
Naphthalene	91-20-3	Possible	2B	A4	n.a.
Hydrotreated light distillate (petroleum)	64742-47-8	n.a.	n.a.	A4	n.a.
1,2,4-Trimethylbenzene	95-63-6	n.a.	n.a.	n.a.	n.a.
Manganese, Tricarbonyl(.eta.5-2,4-cyclopentadien-1-yl)-	12079-65-1	n.a.	n.a.	n.a.	n.a.
1,3,5-Trimethylbenzene	108-67-8	n.a.	n.a.	n.a.	n.a.

SECTION 12
Ecological Information

Ecotoxicity:

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

CAS# 1330-20-7: LC50, Water Flea (Daphnia magna), 100000. - 1000000. UG/L, 24 H, Mortality, Water temperature: 21.00 C (69.8 F) - 25.00 C (77.0 F) C. Results: Abnormal development. - Toxicity of Selected Chemicals to Certain Animals, Dowden, B.F., and H.J. Bennett, 1965 LC50, Brine Shrimp (Artemia salina), 1830. UMOL/L, 24 H, Mortality. Results: Age Effects. - Comparative Acute Toxicity of the First 50 Multicentre Evaluation of In Vitro Cytotoxicity Chemicals to Aquatic Non-vertebrates, Calleja, M.C., G. Persoone, and P. Geladi, 1994

CAS# 100-41-4: LC50, Fathead Minnow (Pimephales promelas), 12100. UG/L, 96 H, Mortality, Water temperature: 26.10 C (79.0 F) C, pH: 7.40, Hardness: 45.60 MG/L. Results: Behavioral Effects. - Acute Toxicities of Organic Chemicals to Fathead Minnows (Pimephales promelas) Volume III, Geiger, D.L., S.H. Poirier, L.T. Brooke, and D.J. Call, 1986. LC50, Water Flea (Daphnia magna), 75000. UG/L, 48 H, Mortality, Water temperature: 22.00 C (71.6 F) C, pH: 8.10, Hardness: 72.00 MG/L.Results:Age Effects – Acute Toxicity of Priority Pollutants to Water Flea (Daphnia magna), LeBlanc, G.A., 1980

CAS# 91-20-3: LC50, Water Flea (Daphnia magna), 17000. UG/L, 24 H, Mortality, Water temperature: 22.00 C (71.6 F) C, pH: 9.40, Hardness: 173.00 MG/L. Results: Abnormal development. - Acute Toxicity of Priority Pollutants to Water Flea (Daphnia magna), LeBlanc, G.A., 1980

CAS# 64742-47-8: LC50, Bluegill (Lepomis macrochirus), 5900. UG/L, 4 D, Mortality, Water temperature: 18.00 C (64.4 F) C, pH: 7.50. Results: Behavioral Effects. - Report to Nalco Chemical Company: Four-Day Static Fish Toxicity Studies with D-2303 in Rainbow Trout and Bluegills: IBT No. A615, Hamlin, J., 1971

CAS# 95-63-6: LC50, Brine Shrimp (Artemia salina), nauplii, 100.0 MMOL/M3, 24 H, Mortality, Water temperature: 20.00 C (68.0 F) C. Results: Affected fish stopped schooling behavior. - Acute Lethal Toxicity of Hydrocarbons and Chlorinated Hydrocarbons to Two Planktonic Crustaceans: The Key Role of Organism-Water Partitioning, Abernethy, S., A.M. Bobra, W.Y. Shiu, P.G. Wells, and D. Mackay, 1986

CAS# 108-67-8:LC50, Brine Shrimp (Artemia salina), nauplii, 118.0 MMOL/M3, 24 H, Mortality, Water

temperature: 20.00 C (68.0 F) C. Results: Age Effects. - Acute Lethal Toxicity of Hydrocarbons and Chlorinated Hydrocarbons to Two Planktonic Crustaceans: The Key Role of Organism-Water Partitioning, Abernethy, S., A.M. Bobra, W.Y. Shiu, P.G. Wells, and D. Mackay, 1986

Persistence and Degradability: Methylcyclopentadienyl Manganese Tricarbonyl (MMT) is extremely photosensitive and decomposes rapidly when exposed to light. Photolytic action converts the organic compound to a mixture of non-hazardous manganese oxides, carbonates and organics derived from methylcyclopentadiene. These decomposition products are less toxic than the neat MMT. MMT photolyses rapidly in water.

Bioaccumulation Potential: No data available.

Mobility in Soil: May partition into air, soil and water.

Other Adverse Effects: No data available. No results of PBT and vPvB assessments.

SECTION 13
Disposal Considerations

Storage and Disposal This product as produced is not specifically listed as an EPA RCRA hazardous waste according to federal regulations (40 CFR 261). However, when discarded or disposed of, it may meet the criteria of a "characteristic" hazardous waste. This material could become a hazardous waste if mixed or contaminated with a hazardous waste or other substance(s). It is the responsibility of the user to determine if disposal material is hazardous according to federal, state and local regulations.

Waste Disposal Method: Follow local, National and other applicable regulations.

SECTION 14
Transport Information

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

U.S. DOT
UN/ID Number: UN1993
Proper shipping name: Flammable liquid, n.o.s. (Petroleum distallates, Xylene, Napthalene)
Hazard class: 3
Packing Group: III
Exceptions: None.
Environmental Hazards: Marine Pollutant
Transport in Bulk: N/A.
Special Precautions: Regulated only in bulk packages and by vessel in quantities above 5 L per package.

IMO/IMDG
UN/ID Number: UN1993
Proper shipping name: Flammable liquid, n.o.s. (Petroleum distallates, Xylene, Napthalene)
Hazard class: 3
Packing Group: III

Exceptions: None.
Environmental Hazards: Marine Pollutant
Transport in Bulk: N/A.
Special Precautions:

ICAO/IATA
UN/ID Number: UN1993
Proper shipping name: Flammable liquid, n.o.s. (Petroleum distallates, Xylene, Napthalene)
Hazard class: 3
Packing Group: III
Exceptions: None.
Environmental Hazards: Marine Pollutant
Transport in Bulk: N/A.
Special Precautions:

Canada (TDG)
UN/ID Number: UN1993
Proper shipping name: Flammable liquid, n.o.s. (Petroleum distallates, Xylene, Napthalene)
Hazard class: 3
Packing Group: III
Exceptions: None.
Environmental Hazards: Marine Pollutant
Transport in Bulk: N/A.
Special Precautions:

Europe (ADR/RID)
UN/ID Number: UN1993
Proper shipping name: Flammable liquid, n.o.s. (Petroleum distallates, Xylene, Napthalene)
Hazard class: 3
Packing Group: III
Exceptions: None.
Environmental Hazards: Marine Pollutant
Transport in Bulk: N/A.
Special Precautions:

SECTION 15
Regulatory Information

US EPA SARA Title III

COMPONENTS	CAS Number	Sec 302 (EHS)	Sec 304 (RQ)	Sec 313 (TRI)	Sec 110
Fuel oil, no. 2	68476-30-2	No	No	No	No
Manganese, Tricarbonyl methylcyclopentadienyl	12108-13-3	Yes 100 lb	Yes NA	Yes Cat N450	No
Paraffins (petroleum), normal C5-C20	64771-72-8	No	No	No	No
Solvent naphtha (petroleum), Heavy arom	64742-94-5	No	No	No	No
Xylene (mixed isomers)	1330-20-7	No	Yes 100 lb	Yes	Yes
Ethylbenzene	100-41-4	No	Yes 100 lb	Yes	Yes
Naphthalene	91-20-3	No	Yes 100 lb	Yes	Yes
Hydrotreated light distillate (petroleum)	64742-47-8	No	No	No	No
1,2,4-Trimethylbenzene	95-63-6	No	No	Yes	No

Manganese, Tricarbonyl(.eta.5-2,4-cyclopentadien-1-yl)-	12079-65-1	No	No	Yes Cat N450	No
1,3,5-Trimethylbenzene	108-67-8	No	No	No	No

US EPA CAA. CWA, TSCA

COMPONENTS	CAS Number	EPA CAA	EPA CWA NPDES	EPA TSCA	CA PROP 65
Fuel oil, no. 2	68476-30-2	No	No	Inventory	No
Manganese, Tricarbonyl methylcyclopentadienyl	12108-13-3	HAP	No	Inventory	No
Paraffins (petroleum), normal C5-C20	64771-72-8	No	No	Inventory	No
Solvent naphtha (petroleum), Heavy arom	64742-94-5	No	No	Inventory	No
Xylene (mixed isomers)	1330-20-7	HAP	Yes	Inventory	No
Ethylbenzene	100-41-4	HAP	Yes	Inventory 4, Test	Yes
Naphthalene	91-20-3	HAP	Yes	Inventory, 4 Test, 8A PAIR	Yes
Hydrotreated light distillate (petroleum)	64742-47-8	No	No	Inventory	No
1,2,4-Trimethylbenzene	95-63-6	No	No	Inventory	No
Manganese, Tricarbonyl(.eta.5-2,4-cyclopentadien-1-yl)-	12079-65-1	HAP	No	Inventory	No
1,3,5-Trimethylbenzene	108-67-8	No	No	Inventory, 4 Test	No

SARA (Superfund Amendments and Reauthorization Act of 1986) Lists:

Sec.302: EPA SARA Title III Section 302 Extremely Hazardous Chemical with TPQ. * indicates 10000 LB TPQ if not volatile.
Sec.304: EPA SARA Title III Section 304: CERCLA Reportable + Sec.302 with Reportable Quantity. **indicates statutory RQ.
Sec.313: EPA SARA Title III Section 313 Toxic Release Inventory. Note: -Cat indicates a member of a chemical category.
Sec.110: EPA SARA 110 Superfund Site Priority Contaminant List
TSCA (Toxic Substances Control Act) Lists:

Inventory: Chemical Listed in the TSCA Inventory.
5A(2): Chemical Subject to Significant New Rules (SNURS)
6A: Commercial Chemical Control Rules
8A: Toxic Substances Subject To Information Rules on Production
8A CAIR: Comprehensive Assessment Information Rules - (CAIR)
8A PAIR: Preliminary Assessment Information Rules - (PAIR)
8C: Records of Allegations of Significant Adverse Reactions
8D: Health and Safety Data Reporting Rules
8D TERM: Health and Safety Data Reporting Rule Terminations
12(b): Notice of Export

Other Important Lists:
CWA NPDES: EPA Clean Water Act NPDES Permit Chemical
CAA HAP: EPA Clean Air Act Hazardous Air Pollutant
CAA ODC: EPA Clean Air Act Ozone Depleting Chemical (1=CFC, 2=HCFC)
CA PROP 65: California Proposition 65

International Regulatory Lists:
EPA Hazard Categories: This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:

[X] Yes [ ] No Acute (immediate) Health Hazard
[X] Yes [ ] No Chronic (delayed) Health Hazard
[X] Yes [ ] No Fire Hazard
[ ] Yes [X] No Sudden Release of Pressure Hazard
[ ] Yes [X] No Reactive Hazard

SECTION 16
Other Information

The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein, except for conformation to contracted specifications. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency. Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon, information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.

ABBREVIATIONS:

NG="NOT GIVEN"	BT="BETWEEN"
<="LESS THAN"	>="GREATER THAN"
ND = Not Determined	NA = Not Applicable