



SECTION I: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: **Diesel-Fx**
Product use: Diesel Fuel Enhancer

Manufacturer: WYS Manufacturing Ltd.
Bay 7 & 8, 4216 – 54th Ave. SE
Calgary, Alberta T2C 2E3
Phone 1-403-252-2239
Canada

Supplier: Maryn International Ltd.
Bay 5 & 6, 4216 – 54th Ave. SE
Calgary, Alberta T2C 2E3
Phone 1-403-252-2239
Canada

Emergency Phone Number: CANUTEC – 24 hr Emergency No. 1-613-996-6666
Business Hour Number 1-403-252-2239
(Monday through Friday 8:00am to 4:30pm MST)

MSDS Prepared By B Chandler
Date Prepared Wednesday, September 08, 2010

SECTION II: COMPOSITION/ INFORMATION ON INGREDIENTS

Hazardous Ingredients	Concentration %	C.A.S. #	LD ₅₀ (Species/Route)	LC ₅₀ (Species/Route)
Solvent Naphtha (petroleum), Heavy Aromatic	10-15	64742-94-5	>2 mL/kg (Rabbit/Dermal) 3200 mg/kg (Rat/Oral)	590 mg/m ³ /4H (Rat/Inhalation)(Saturated vapour no mortalities)
2-Ethylhexyl Nitrate	60-100	27247-96-7	>9640 mg/kg (Rats/Oral)	Not Available
Ethylene Glycol Monobutyl Ether	1-5	111-76-2	1167 mg/kg (Mouse/Oral), 1230 mg/kg (Mouse/Oral), 470 mg/kg (Rat/Oral), 530 mg/kg (Rat/Oral), 917 mg/kg (Rat/Oral), 320 mg/kg (Rabbit/Oral), 1200 mg/kg (Guinea Pig/Oral), 220 mg/kg (Rabbit/Dermal), 99	450 ppm/4H (Rat/Inhalation), 700 ppm/7H (Mouse/Inhalation), 3380 mg/m ³ /7H (Mouse/Inhalation), 2900 mg/m ³ /7H (Rat/Inhalation)



			mg/kg (Rabbit/Dermal)	
naphthalene	0.1 - < 1	91-20-3	Oral rat: 490 mg/kg; Skin rabbit: > 20 g/kg;	Inhalation rat : 340 mg/m ³ , 1 hour;
ethylbenzene	0.1 - < 1	100-41-4	Inhalation, mouse: 35,500 mg/m ³ /2H Oral, rat: 3500 mg/kg; Skin, rabbit: = 17800 uL/kg.	Inhalation, rat: LC50 = 55,000 g/m ³ /2H;

SECTION III: Hazards Identification

Emergency Overview

WARNING!
 COMBUSTIBLE LIQUID AND VAPOR. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. HARMFUL OR FATAL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. SUSPECT CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER.

Combustible liquid. Harmful by inhalation and in contact with skin. May be harmful if swallowed. Moderately irritating to the respiratory system. Slightly irritating to the eyes and skin. Aspiration hazard if swallowed. Can enter lungs and cause damage. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Contains material that can cause target organ damage. Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Route of entry

Skin contact, skin adsorption, eye contact, inhalation and ingestion are the primary routes of exposure to this product.

Ingestion

Harmful if swallowed. Aspiration hazard if swallowed. Can enter lungs and cause damage.

Inhalation

Toxic by inhalation. Moderately irritating to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin Contact

Toxic in contact with skin. Slightly irritating to the skin.

Eye Contact

Slightly irritating to the eyes.

Effects of Chronic Exposure

Contains material that can cause target organ damage.

Effects of Acute Exposure

See individual routes of entry above.

SECTION IV: First Aid Measures

Ingestion

Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin

In case of contact, immediately flush skin with plenty of water for at least 15 minutes



Contact	while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
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.
Eye Contact	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 immediately.
Notes to Physician	Treatment based on sound judgment of physician and individual reactions of patient. Any material aspirated during vomiting may cause lung injury. Therefore, emesis should not be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents, this should be done by means least likely to cause aspiration (e.g. gastric lavage after endotracheal intubation).

SECTION V: Fire-Fighting Measures

Flammability	May be combustible at high temperature.
Means of Extinction	Carbon dioxide, dry chemicals, alcohol foam, or water spray. Keep containers cool with water spray. When fighting fire, wear full protective clothing, including NIOSH approved self-contained breathing apparatus. Avoid spreading with water flooding. Fight fire from maximum distance as heat may decompose material and cause containers to rupture. Product may produce floating fire hazards in extreme fire conditions. This product can produce flammable vapors that may travel to a source of ignition and flash back.
Flash Point (ASTM D92)	Closed cup: 72.778°C (163°F)
Flammability Limits	Greatest known range: Lower: 1.1% Upper: 10.6% (2-butoxyethanol)
Auto Ignition Temperature	Lowest known value: 130 to 215°C (266 to 419°F) (2-ethylhexyl nitrate).
Hazardous Combustion Products	Carbon monoxide and oxides of nitrogen.
Fire and Explosion Hazards	None
Sensitivity to Static Discharge	Yes

SECTION VI: Accidental Release Measures

Personal Protection	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	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)..



Methods for cleaning up

Stop leak if without risk. 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.

Large spills

Stop leak if without risk. Dike to contain spill. Pump excess material into suitable container (metal drums, metal tanks, or such). Clean up residual with absorbent material, place in appropriate container, and flush with water. Unless released material is cleaned up for reprocessing, recycling, or reuse, a release of 100lbs may trigger reporting requirements for CERCLA Section 103.

SECTION VII: Handling and Storage

Handling

Put on appropriate personal protective equipment (see section 8). 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. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. 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 retain product residue and can be hazardous. Do not reuse container.

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 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.

SECTION VIII: Exposure Controls / Personal Protection

Component	Exposure Limit (ACGIH)	Exposure Limit (OSHA)	Immediately Dangerous to Life and Health (IDLH)
Solvent Naphtha (petroleum), Heavy Aromatic	Not available	Not available	Not available
2-Ethylhexyl Nitrate	Not available	Not available	Not available
Ethylene Glycol Monobutyl Ether	20 ppm (97 mg/ m ³) TLV-TWA	50 ppm (240 mg/ m ³), skin, PEL-TWA	700 ppm
naphthalene	TWA= 10 ppm, 52 mg/m ³ STEL= 15 ppm, 79 mg/m ³ .	10 ppm, 50 mg/m ³	250 ppm



ethylbenzene	TWA 100 ppm; STEL 125 ppm	100 ppm (OSHA)	2000 ppm
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- Engineering Controls** Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Respiratory Protection** Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Eye Protection** Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
- Skin Protection** Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

SECTION IX: Physical and Chemical Properties

- Physical State:** Liquid
- Odour:** Aromatic
- Appearance:** Clear, amber
- Odour Threshold:** Not established
- Flash Point:** Closed cup: 72.778°C (163°F)
- Auto Ignition:** Lowest known value: 130 to 215°C (266 to 419°F) (2-ethylhexyl nitrate).
- Specific Gravity:** 0.959 [ASTM D 4052]
- Vapour Pressure:** Highest known value: 0.1 kPa (0.8 mm Hg) (at 20°C) (solvent naphtha (petroleum), heavy arom.). Weighted average: 0.04 kPa (0.3 mm Hg) (at 20°C)
- Vapor Density:** Highest known value: 4.6 to 5.5 (Air = 1) (solvent naphtha (petroleum), heavy arom.). Weighted average: 1.71 (Air = 1)
- Evaporation Rate:** Highest known value: <1 (2-ethylhexyl nitrate) Weighted average: 0.76 compared with Butyl acetate.
- Boiling Point:** Lowest known value: 168.4 to 170.85°C (335.1 to 339.5°F) (2-butoxyethanol). Weighted average: 191.5°C (376.7°F)
- Pour Point:** May start to solidify at the following temperature: <-20°C (-4°F) This is based on data for the following ingredient: solvent naphtha (petroleum), heavy arom.. Weighted average: -47.06°C (-52.7°F)
- Solubility in Water:** Easily soluble in the following materials: cold water and hot water.

SECTION X: Stability and Reactivity

- Chemical Stability:** Stable. Decomposes violently when heated above 100°C.



- Incompatibility:** Avoid contact with strong oxidizing agents, reducing agents, alkalis, excessive heat, and all ignition sources.
- Reactivity:** Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge. Slightly explosive in the presence of the following materials or conditions: heat.
- Polymerization:** Will not occur
- Decomposition Products:** Decomposes with heat. Hazardous gases/vapors produced are oxides of nitrogen and carbon monoxide. Decomposition temperature: >100°C (>212°F)

SECTION XI: Toxicological Information

- Sensitization:** Repeated or prolonged contact may cause sensitization in some individuals.
- Carcinogenicity:** Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure.
- Reproductive Toxicity:** Although abnormal sperm were observed after an interperitoneal injection in rats, xylene did not produce reproductive effects. An increase in menstrual disorders has been reported in women exposed to organic solvents, but is not possible to attribute this to xylene alone. Xylene has produced fetotoxic effects (delayed ossification and behavioral effects) in animals, in the absence of maternal toxicity. Note: An ingredient in the controlled product has been shown to cause fetotoxic effects in laboratory animals at maternally toxic dose levels.
- Teratogenicity:** No known significant effects or critical hazards.
- Mutagenicity:** No known significant effects or critical hazards.
- Toxicologically Synergistic Products**
- Target Organs** Contains material which causes damage to the following organs: blood, kidneys, liver, lymphatic system, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea. Contains material which may cause damage to the following organs: cardiovascular system.

Additional Information:

Heavy Aromatic Naphtha (64742-94-5) is a severe skin irritant, but is not a skin sensitizer in animals. Dermal exposure produces central nervous system (CNS) symptoms in rats, whereas ingestion produces CNS effects in animals. No animal test reports available to define carcinogenic, mutagenic, developmental or reproductive hazards.

Workers exposed to 2-ethylhexyl nitrate reported throbbing headaches and heart palpitations. Single ingestion exposure produced weight loss, diarrhea, loss of coordination and prostration. Repeated inhalation exposures produced weight loss and increased liver weight.

Ethylene glycol butyl ether (EGBE) acutely inhaled is a toxic respiratory irritant that produces CNS effects in animals. Repeated dermal exposure to EGBE causes blood effects in animals. Acute inhaled EGBE vapor caused blood and CNS effects in rats. In rats, chronic inhalation of EGBE produced anemia and spleen effects. Female rats showed significantly higher rates of malignant adrenal gland tumors. Chronic inhalation of EGBE produced anemia and spleen effects in male and female mice, males exhibited significantly higher rates of malignant liver tumors. Oral exposure to EGBE causes CNS effects in rats. Chronic EGBE ingestion induces hematopoietic effects in rats.

SECTION XII: Ecological information



Environmental Effects (Ecotoxicological Data):

Component	Ecotoxicity – Fish Species Data	Acute Toxicity	Ecotoxicity – Fresh Water Algae Data
Solvent Naphtha (petroleum), Heavy Aromatic	Fathead Minnows 96 hr LC50 4.2-20.8 mg/L	Acute Daphnia EC50 @ 48 hrs 3 to 10 mg/l	Acute Daphnia EC50 @ 72 hrs 1 to 3 mg/l
2-Ethylhexyl Nitrate	Acute LC50 @ 96 hrs >12.6 mg/L	Acute Daphnia EC50 @ 48 Hrs >12.6 mg/L	Acute EC50 @ 72 Hrs >12.6 mg/L
Ethylene Glycol Monobutyl Ether	LC50 (Lepomis macrochirus) 1490 mg/L	Acute LC50 @ 48 Hrs 800,000 to 1,000,000 ug/L Marine water	Not available
naphthalene	Acute LC50 @ 96 hrs 1.8 mg/L	Acute Daphnia EC50 @ 48 Hrs 1.96 mg/L Fresh water	Not available
ethylbenzene	Acute LC50 @ 96 hrs 4.2 mg/L	Acute Daphnia EC50 @ 48 Hrs 2.93 mg/L Fresh water	Acute EC50 @ 48 hrs 7.2 mg/L

Environmental Fate:

No specific environmental fate data is available. This product is not expected to be readily biodegradable.

SECTION XIII: Disposal Consideration

RCRA 40 CFR 261 Classification Not listed
 US EPA Waste Number / Classification Not available

Waste Disposal

Dispose of waste material in compliance with all federal, state, provincial and local regulations. Incinerate in a furnace or bury in an approved landfill where permitted under appropriate federal, provincial and local regulations. Empty containers should be recycled or disposed of through an approved waste management facility.

SECTION XIV: Transport Information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	NA1993	Combustible liquid, n.o.s. (2-ethylhexyl nitrate, solvent naphtha (petroleum), heavy arom.). Marine pollutant (2-ethylhexyl nitrate)	Combustible liquid.	III		Marine pollutant Limited quantity Yes. Packaging instruction Passenger aircraft Quantity limitation: 60 L Cargo



						<p>aircraft Quantity limitation: 220 L Special provisions IB3, T1, T4, TP1 Remarks This material is not regulated under 49 CFR in a container of 119 gallon capacity or less when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.</p>
TDG Classification	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2-ethylhexyl nitrate)	9	III		<p>Explosive Limit and Limited Quantity Index 5 Special provisions 16</p>
Mexico Classification	UN3082	SUSTANCIA LIQUIDA POTENCIALMENTE PELIGROSAS PARA EL MEDIO AMBIENTE, N.E.P. (2-ethylhexyl nitrate). Marine pollutant (2-ethylhexyl nitrate)	9	III		<p>Marine pollutant Special provisions 179, 274</p>
ADR/RID Class	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2-ethylhexyl nitrate)	9	III		<p>Hazard identification number 90 Limited quantity LQ7 CEPIC</p>



						Tremcard 90GM6-III
IMDG Class	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2- ethylhexyl nitrate). Marine pollutant (2- ethylhexyl nitrate)	9	III		Emergency schedules (EmS) F-A, S-F Marine pollutant
IATA-DGR Class	Not regulated.					

Note:

TDG documentation and Dangerous Goods Safety Marks do not apply if in transport solely on land by road vehicle or railway vehicle and/or by air. (see 1.45.1 Marine Pollutants Exemption, *SOR/2008-34* & Special Provision A97, *Technical Instructions for the Safe Transport of Dangerous Good by Air*, ICAO)

Marine Pollutant:

Yes

Reportable Quantity:

Naphthalene 100 lbs, Xylene 100 lbs

Shipping Containers:

Steel Drums UN1A1/Y/100

SECTION XV: Regulatory Information

CPR Compliance:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

OSHA Hazard Communication Standards 29CFR 1910.1200:

This product has been determined to contain carcinogens required to be listed under OSHA Hazards Communication Standards 29 CFR 1910.1200 and is toxic and combustible.

WHMIS Classification:

This product is classified under the following WHMIS category:

- B3 Combustible Liquids
- D1A Very Toxic Materials
- D2A Very Toxic Materials
- D2B Toxic Materials

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

CERCLA:

Not listed on CERCLA (40CFR 302.4). If this product is accidentally spilled, it is not subject to special reporting under requirements of the Comprehensive Environmental Response and Liability Act. We recommend you contact local authorities to determine if there may be other local reporting requirements.

SARA Title III Section 311/312:

	Product name	CAS number	Concentration
Form R – Reporting requirements	2-butoxyethanol	111-76-2	0.99 - 4.99
	naphthalene	91-20-3	0.09 - 0.99



	ethylbenzene	100-41-4	0.09 - 0.99
Supplier notification	2-butoxyethanol naphthalene ethylbenzene	111-76-2 91-20-3 100-41-4	0.99 - 4.99 0.09 - 0.99 0.09 - 0.99
State regulations	WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.		

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
naphthalene	Yes	No	Yes	No
ethylbenzene	Yes	No	No	No

RCRA:

Not controlled under **RCRA** (40 CFR 261.33) for hazardous waste.

NPRI:

Not Controlled under the **NPRI** of the Canadian EPA.

Chemical Inventory

Canada: The ingredients of this product are on the DSL, the NDSL, or exempt.
 United States: The ingredients of this product are on the TSCA or exempt.

SECTION XVI Other Information

Label Requirements: COMBUSTIBLE LIQUID AND VAPOR. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. HARMFUL OR FATAL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. SUSPECT CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER.

HMIS Information

Degree of Hazard	HMIS Rating
4= Severe	Health 2
3= Serious	Flammability 2
2= Moderate	Reactivity 1
1= Slight	
0= Minimal	

Revision Information

Prepared by: Maryn Research

Phone: 1-403-252-2239

Effective Date: Wednesday, September 08, 2010

Supersedes: -

Revision: 1.0

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