

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: HYJET IV-A PLUS
Product Description: Synthetic Base Stocks and Additives
Product Code: 201050303010, 430314-00, 97P282
Intended Use: Aviation hydraulic fluid

COMPANY IDENTIFICATION

Supplier: EXXON MOBIL CORPORATION
3225 GALLOWES RD.
FAIRFAX, VA. 22037 USA

24 Hour Health Emergency: 609-737-4411
Transportation Emergency Phone: 800-424-9300
ExxonMobil Transportation No.: 281-834-3296
Product Technical Information: 800-662-4525, 800-947-9147
MSDS Internet Address: <http://www.exxon.com>, <http://www.mobil.com>

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	Concentration*
ALIPHATIC EPOXIDE	62256-00-2	5 - 10%
TRIBUTYL PHOSPHATE	126-73-8	70 - 80%
TRIPHENYL PHOSPHATE	115-86-6	<2.5%

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

SECTION 3 HAZARDS IDENTIFICATION

This material is considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

POTENTIAL HEALTH EFFECTS

Irritating to eyes. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. When heated, the vapors/fumes given off may cause respiratory tract irritation. High-pressure injection under skin may cause serious damage.

Target Organs: Eye |

ENVIRONMENTAL HAZARDS

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

NFPA Hazard ID: Health: 2 Flammability: 1 Reactivity: 0
HMIS Hazard ID: Health: 2* Flammability: 1 Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert

Product Name: HYJET IV-A PLUS

Revision Date: 21Apr2009

Page of 10

advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water for at least 15 minutes. Get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: May generate irritating and harmful gases/vapors/fumes when burning. Pressurized mists may form a flammable mixture. Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Smoke, Fume, Aldehydes, Sulfur oxides, Phosphorus oxides, Incomplete combustion products, Nitrogen oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: 160C (320F) [ASTM D-92]

Product Name: HYJET IV-A PLUS

Revision Date: 21Apr2009

Page of 10

Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: 400°C (752°F)

SECTION 6	ACCIDENTAL RELEASE MEASURES
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NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for Personal Protective Equipment.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. Prevent entry into waterways, sewer, basements or confined areas. Ventilate the area. Recover by pumping or with suitable absorbent. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

Water Spill: Stop leak if you can do it without risk. Material will sink. Remove material, as much as possible, using mechanical equipment.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7	HANDLING AND STORAGE
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HANDLING

Avoid vapors from heated materials to prevent exposure to potentially toxic/irritating fumes. Avoid contact with eyes. Avoid contact with skin. Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is not a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8	EXPOSURE CONTROLS / PERSONAL PROTECTION
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EXPOSURE LIMIT VALUES

Product Name: HYJET IV–A PLUS

Revision Date: 21Apr2009

Page of 10

Exposure limits/standards (Note: Exposure limits are not additive)

Source	Form	Limit / Standard		Note	Source
TRIBUTYL PHOSPHATE		TWA	5 mg/m3	N/A	OSHA Z1
TRIBUTYL PHOSPHATE		TWA	0.2 ppm	N/A	ACGIH
TRIPHENYL PHOSPHATE		TWA	3 mg/m3	N/A	OSHA Z1
TRIPHENYL PHOSPHATE		TWA	3 mg/m3	N/A	ACGIH

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Adequate ventilation should be provided whenever the material is heated or mists are generated.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied–air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

If prolonged or repeated contact is likely, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves.

Eye Protection: Chemical goggles are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

If prolonged or repeated contact is likely, chemical, and oil resistant clothing is recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after

Product Name: HYJET IV–A PLUS

Revision Date: 21Apr2009

Page of 10

handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State: Liquid

Form: Clear

Color: Violet

Odor: Sweet

Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 C): 1.001

Flash Point [Method]: 160C (320F) [ASTM D–92]

Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D

Autoignition Temperature: 400°C (752°F)

Boiling Point / Range: 288C (550F)

Vapor Density (Air = 1): N/D

Vapor Pressure: 0.067 kPa (0.5 mm Hg) at 20 C

Evaporation Rate (n–butyl acetate = 1): N/D

pH: N/D

Log Pow (n–Octanol/Water Partition Coefficient): N/D

Solubility in Water: Negligible

Viscosity: 10.1 cSt (10.1 mm²/sec) at 40 C | 3.5 cSt (3.5 mm²/sec) at 100C

Oxidizing Properties: See Sections 3, 15, 16.

OTHER INFORMATION

Freezing Point: N/D

Melting Point: N/D

Pour Point: < –62°C (–80°F)

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

Product Name: HYJET IV-A PLUS

Revision Date: 21Apr2009

Page of 10

SECTION 11	TOXICOLOGICAL INFORMATION
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ACUTE TOXICITY

Route of Exposure	Conclusion / Remarks
Inhalation	
Toxicity (Rat): LC50 > 5 mg/l	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data.	May be irritating to the respiratory tract. The effects are reversible. Based on test data for structurally similar materials.
Ingestion	
Toxicity (Rat): LD50 1.671 g/kg	Slightly toxic. Based on test data for the material.
Skin	
Toxicity (Rabbit): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for the material.
Eye	
Irritation (Rabbit): No end point data.	Irritating and will injure eye tissue. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:

Sensitization: Non-sensitizing to the skin in humans.

Sensitization: Non-sensitizing to the skin of laboratory animals.

Contains:

Tributyl phosphate (TBP): Studies in rats have shown an increased incidence of urinary bladder tumors following long-term feeding of TBP in the diet. No bladder tumors were observed in similar studies in mice. The relevance of these findings for humans is uncertain.

Additional information is available by request.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

SECTION 12	ECOLOGICAL INFORMATION
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The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Expected to be harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

SECTION 13	DISPOSAL CONSIDERATIONS
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Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Dispose of waste at an appropriate treatment & disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. **DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.**

SECTION 14	TRANSPORT INFORMATION
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LAND (DOT)

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (contains TRIPHENYL PHOSPHATE)

Hazard Class & Division: 9

ID Number: 3082

Packing Group: III

Marine Pollutant: MP: 0 %weight PP: 2.36 %weight

ERG Number: 171

Label(s): 9

Transport Document Name: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (contains TRIPHENYL PHOSPHATE), 9, PG III, MARINE POLLUTANT

Footnote: This material is not regulated under 49 CFR if in a container of 119 gallon capacity or less.

LAND (TDG)

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (contains TRIPHENYL PHOSPHATE)

Hazard Class & Division: 9

UN Number: 3082

Packing Group: III

Marine Pollutant: MP: 0 %weight PP: 2.36 %weight

Product Name: HYJET IV-A PLUS

Revision Date: 21Apr2009

Page of 10

Special Provisions: 16

Footnote: In containers of 454 litres or less this material is exempt from TDG regulations.

SEA (IMDG) : Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA) : Not Regulated for Air Transport

[Footnote: This material is not regulated by IATA, however, it may be classified as an environmentally hazardous substance according to Special Provision A97.]

SECTION 15	REGULATORY INFORMATION
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OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purpose, this material is classified as hazardous in accordance with OSHA 29CFR 1910.1200.

NATIONAL CHEMICAL INVENTORY LISTING: IECSC, DSL, EINECS, TSCA

Special Cases:

Inventory	Status
AICS	Restrictions Apply
KECI	Restrictions Apply

EPCRA: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: Immediate Health. Delayed Health.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
CYCLOHEXANESULFONIC ACID, DECAFLUORO(PENTAFLUOROETHYL)-, POTASSIUM SALT	67584-42-3	6
CYCLOHEXANESULFONIC ACID, NONAFLUOROBIS(TRIFLUOROMETHYL)-, POTASSIUM SALT.	68156-01-4	6
TRIBUTYL PHOSPHATE	126-73-8	1, 4, 13, 16, 17, 18, 19
TRIPHENYL PHOSPHATE	115-86-6	1, 4, 13, 16, 17, 19

--REGULATORY LISTS SEARCHED--

Product Name: HYJET IV-A PLUS

Revision Date: 21Apr2009

Page of 10

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16	OTHER INFORMATION
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N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:

Section 05: Hazardous Combustion Products was modified.

Section 14: IMO Technical Name – Open parenthesis was deleted.

Section 14: Proper Shipping Name was deleted.

Section 14: Hazard Class & Division – Header was deleted.

Section 14: Hazard Class was deleted.

Section 14: UN Number – Header was deleted.

Section 14: UN Number was deleted.

Section 14: Packing Group – Header was deleted.

Section 14: Packing Group was deleted.

Section 14: Label(s) – Header was deleted.

Section 14: Label(s) was deleted.

Section 14: EMS Number – Header was deleted.

Section 14: EMS Number was deleted.

Section 14: Transport Document Name – Header was deleted.

Section 14: Transport Document Name was deleted.

Section 14: Marine Pollutant – Header was deleted.

Section 14: Marine Pollutant was deleted.

Section 14: Sea (IMDG) – Default was added.

Section 15: National Chemical Inventory Listing was modified.

Section 14: IMO Technical Name – All was deleted.

Section 14: IMO Technical Name – Close parenthesis was deleted.

Section 14: Proper Shipping Name – Header was deleted.

PRECAUTIONARY LABEL TEXT:

Contains: TRIBUTYL PHOSPHATE

WARNING!

HEALTH HAZARDS

Irritating to eyes.

Target Organs: Eye |

PRECAUTIONS

Avoid vapors from heated materials to prevent exposure to potentially toxic/irritating fumes. Avoid contact with eyes.

Avoid contact with skin.

FIRST AID

Eye: Flush thoroughly with water for at least 15 minutes. Get medical assistance.

Oral: Seek immediate medical attention. Do not induce vomiting.

Product Name: HYJET IV-A PLUS

Revision Date: 21Apr2009

Page of 10

Skin: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

Use

Not intended or suitable for use in or around a household or dwelling.

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MHC: 1, 0, 0, 2, 0, 2

PPEC: D

DGN: 2027160XUS (552689)

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