



INNOVATION
APPLICATION
FORMATION
CARACTERISATION

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SIRET 437 950 173 00041 – NAF 7490B – VAT FR 81437950173

Cahier des charges : A0 2014/04

Enceinte climatique

Révisions	Date	Description
A	27/03/2014	Version originale

TABLE DES MATIERES

1. GENERALITES	2
1.1. GLOSSAIRE	2
1.2. OBJET	2
1.3. CONTEXTE	2
2. SPECIFICATION DU BESOIN	3
2.1. FOUR POUR ESSAI DE FLUAGE	ERREUR ! SIGNET NON DEFINI.
3. CRITERES DE CONSULTATION.....	4



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1. GENERALITES

1.1. Glossaire

STB : Spécification Technique de Besoin
MCO: Maintien en Condition Opérationnelle

1.2. Objet

Le but du présent document est de définir les exigences relatives à l'acquisition et la fourniture d'enceintes climatiques à des fins de réalisation d'essais de vieillissement.

1.3. Contexte

Rescoll est un laboratoire de 80 personnes spécialisé dans l'étude des polymères, collages, et matériaux composites. Rescoll dispose de nombreux moyens d'essais tels des machines de traction, de flexion, des enceintes climatiques, des VRT, des enceintes à brouillard salins, des autoclaves, une enceinte HALT HASS...

Rescoll est notamment capable de réaliser des tests d'immersion, UV, vieillissement, fatigue, fluage ainsi que de très nombreuses analyses allant de la spectroscopie IRTF à la résonance magnétique nucléaire.

Rescoll dispose également d'un laboratoire FEU et de laboratoire chimiques permettant le développement de produits et procédés spéciaux.

Outre la certification ISO9001 :2008, Rescoll est accrédité par le COFRAC sur de nombreux essais, mais est également accrédité par Airbus (NadCap) et qualifier Fal par Safran.

Enfin, Rescoll est un organisme vérificateur, accrédité ISO17020, autorisé à délivrer une déclaration de vérification ETV.

Dans le cadre d'un marché subventionné pour le développement des compétences autour des Céramiques à Matrices Composites, Rescoll est retenu pour réaliser un certains nombres de tests mécaniques permettant d'en caractériser leurs comportements.

Parmi ces tests des essais à chaud doivent être réalisés. Rescoll souhaite donc acquérir des enceintes permettant de réaliser ces essais.



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2. SPECIFICATION DU BESOIN

2.1. Enceinte ATEX pour essai de spray d'huile à chaud

Nous cherchons à réaliser un essai dans lequel une éprouvette est placée à une température comprise entre 185°C et 200°C et sur laquelle un spray d'huile est injecté. Les huiles utilisées sont des huiles aéronautiques dont les FDS sont fournies en annexe : Mobile jet oil II, et BP turbo oil 2197.

L'enceinte devra être capable d'assurer la sécurité de la zone, il n'est pas envisagé de définir une zone ATEX. Ce rôle est du ressort de l'enceinte.

Il peut être envisagé la réalisation d'un caisson placé dans l'enceinte afin de limiter la « pollution » par l'huile. De plus, les déchets d'huile devront être récupérés par un système de rétention dédié.

Les essais réalisés se feront à température constante, pas de contrainte de rampe, durant plusieurs semaines. Les quantités d'huile ne sont pas définies, tout comme la nature précise du spray. En outre cette information ne pourra être précisée, il convient au prestataire d'être force de proposition sur ce point en insistant sur les limites éventuels d'une solution. Cependant, les huiles étant très visqueuses il convient de les chauffer avant leur pulvérisation.

Cependant, nous souhaitons que cette enceinte soit également capable de réaliser des essais à froid (-70°C) ainsi qu'en humidité pour un usage ultérieur.

Le volume utile de la partie spray peut-être faible, l'éprouvette testée ayant des dimensions de l'ordre de 200mm x 50mm x 5mm et ne pèsera que quelques grammes. Cependant, dans l'objectif d'un usage ultérieur de l'enceinte ATEX, nous souhaiterions un volume de l'enceinte de l'ordre de 600dm³.

Si une solution par caisson est retenue, ce caisson peut-être un consommable si cela permet d'optimiser les coûts.

2.2. Enceinte pour essai de VRT

Nous recherchons une enceinte d'un volume compris entre 700l et 1000l, capable de générer des rampes de températures de l'ordre de 20°C/min linéaire entre -70°C et +185°C.

Les produits placés dans l'étude pourront dissiper jusque 500W.

En outre, l'étuve devra être capable de réaliser du -90°C ainsi que 20% à 95% d'humidité relative.



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3. CRITERES DE CONSULTATION

Il est possible de ne répondre que partiellement à cet AO : un seul lot, ou en limitant certaines contraintes telles que la température ou la rampe.

Cependant, la solution retenue sera celle qui proposera globalement la plus avantageuse appréciée en fonction des critères énoncés ci-dessous :

- | | |
|---------------------------------|-----|
| 1. Critères techniques | 40% |
| 2. Prix | 40% |
| 3. SAV et assistance techniques | 20% |

Attention, le prestataire doit impérativement disposer d'un numéro SIRET et être établie en France, la commande et la facturation ne pouvant être effectué que vers une société française.

Le prestataire devra également fournir un planning de réalisation incluant notamment :

- Délai de livraison.
- Date de mise en service et du début de garantie.

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: MOBIL JET OIL II
Product Description: Synthetic Esters and Additives
Product Code: 430207-00, 970570
Intended Use: Aviation lubricating oil, Turbine oil

COMPANY IDENTIFICATION

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

24 Hour Health Emergency 609-737-4411
Transportation Emergency Phone 800-424-9300
ExxonMobil Transportation No. 281-834-3296
MSDS Requests 713-613-3661
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*
1-NAPHTHYLAMINE, N-PHENYL-	90-30-2	1%
TRICRESYL PHOSPHATE	1330-78-5	1 - 3%

* 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 not considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

POTENTIAL HEALTH EFFECTS

This product is not expected to produce adverse health effects under normal conditions of use and with appropriate personal hygiene practices. Product may decompose at elevated temperatures or under fire conditions and give off irritating and/or harmful (carbon monoxide) gases/vapors/fumes. Symptoms from acute exposure to these decomposition products in confined spaces may include headache, nausea, eye, nose, and throat irritation. High-pressure injection under skin may cause serious damage.

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

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person

Product Name: MOBIL JET OIL II

Revision Date: 03Oct2006

Page 2 of 8

to person.

SECTION 4	FIRST AID MEASURES
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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. If irritation occurs, get medical assistance.

INGESTION

Seek immediate medical attention. If medical attention will be delayed, contact a Regional Poison Center or emergency medical professional regarding the induction of vomiting or use of activated charcoal/syrup of ipecac. Do not induce vomiting or give anything by mouth to a groggy or unconscious person.

SECTION 5	FIRE FIGHTING MEASURES
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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.

Hazardous Combustion Products: Carbon monoxide, Phosphorus oxides, Aldehydes, Smoke, Fume, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: 270C (518F) [ASTM D-92]

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

Autoignition Temperature: N/D

Product Name: MOBIL JET OIL II

Revision Date: 03Oct2006

Page 3 of 8

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. U.S. regulations require reporting releases of this material to the environment which exceed the 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.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

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

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is a static accumulator.

STORAGE

Store in a cool, dry place with adequate ventilation. Keep away from incompatible materials, open flames, and high temperatures. Do not store in open or unlabelled containers.

SECTION 8	EXPOSURE CONTROLS / PERSONAL PROTECTION
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EXPOSURE LIMIT VALUES

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.

Product Name: MOBIL JET OIL II

Revision Date: 03Oct2006

Page 4 of 8

Control measures to consider:

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

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 protection is ordinarily required under normal 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. Work conditions can greatly effect glove durability; 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: If contact is likely, safety glasses with side shields 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 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

Color: Amber

Odor: Characteristic

Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Product Name: MOBIL JET OIL II

Revision Date: 03Oct2006

Page 5 of 8

Relative Density (at 15 C): 1
Flash Point [Method]: 270C (518F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D
Boiling Point / Range: N/D
Vapor Density (Air = 1): N/D
Vapor Pressure: [N/D at 20 °C]
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): N/D
Solubility in Water: Negligible
Viscosity: 27.6 cSt (27.6 mm²/sec) at 40 C | 5.1 cSt (5.1 mm²/sec) at 100C
Oxidizing Properties: See Sections 3, 15, 16.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -59°C (-74°F)

SECTION 10	STABILITY AND REACTIVITY
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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.

SECTION 11	TOXICOLOGICAL INFORMATION
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ACUTE TOXICITY

<u>Route of Exposure</u>	<u>Conclusion / Remarks</u>
Inhalation	
Toxicity (Rat): LC50 > 5000 mg/m ³	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on test data for structurally similar materials.
Ingestion	
Toxicity (Rat): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): No end point data.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.
Eye	
Irritation (Rabbit): No end point data.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

Product Name: MOBIL JET OIL II

Revision Date: 03Oct2006

Page 6 of 8

For the product itself:

A literature report of a generic jet engine oil containing tri-cresyl phosphate (TCP) with concentrations of ortho-phenol isomers well in excess of those found in this ExxonMobil product noted delayed peripheral nerve system damage in test animals. A current study of an ExxonMobil Jet Oil formulated with a relatively low ortho-phenol isomer content produced no peripheral nerve system damage in test animals. Oral exposure of male rats to formulation with 3% TCP resulted in no adverse reproductive effects.

Contains:

Phenyl-alpha-naphthylamine (PAN): Undiluted PAN is a skin sensitizer. Human testing with lubricants containing 1.0% PAN caused no reactions indicative of sensitization.

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

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

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

Material -- Not expected to demonstrate chronic toxicity to aquatic organisms.

SECTION 13

DISPOSAL CONSIDERATIONS

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.

Product Name: MOBIL JET OIL II

Revision Date: 03Oct2006

Page 7 of 8

Empty Container Warning PRECAUTIONARY LABEL TEXT: Empty containers may retain residue and can be dangerous. DO NOT PRESSURIZE, 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. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT) : Not Regulated for Land Transport

LAND (TDG) : Not Regulated for Land Transport

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

AIR (IATA) : Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

NATIONAL CHEMICAL INVENTORY LISTING: AICS, IECSC, EINECS, KECI, TSCA

Special Cases:

Inventory	Status
NDSL	Restrictions Apply

EPCRA: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

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
DIPHENYLAMINE	122-39-4	5, 9
PHOSPHORUS	7723-14-0	1, 4
TRICRESYL PHOSPHATE	1330-78-5	17

--REGULATORY LISTS SEARCHED--

- | | | | |
|---------------|--------------|-------------------|-------------|
| 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 |

Product Name: MOBIL JET OIL II

Revision Date: 03Oct2006

Page 8 of 8

5 = TSCA 4

10 = CA P65 CARC

15 = MI 293

Code key: CARC=Carcinogen; REPRO=Reproductive

* EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm whether the ingredients in this product currently appear on a TSCA 4 or TSCA 12b list.

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 15: National Chemical Inventory Listing was modified.

Section 11: Chronic Tox - Product was modified.

The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. The term, "ExxonMobil" is used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliates in which they directly or indirectly hold any interest.

Internal Use Only

MHC: 0, 0, 0, 0, 0, 0

PPEC: C

DGN: 2003056XUS (552669)

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1. Identification of the material and supplier

Product name	BP Turbo Oil 2197
SDS #	452218
Historic SDS#:	0000000072
Product use	Turbine Oil For specific application advice see appropriate Technical Data Sheet or consult our company representative.
Supplier	BP Australia Pty Ltd (ABN 53 004 085 616) Melbourne Central, 360 Elizabeth Street, Melbourne, Victoria 3000, Australia Tel: +61 (03) 9268 4111 Fax: +61 (03) 9268 3321
EMERGENCY TELEPHONE NUMBER	1800 638 556
OTHER PRODUCT INFORMATION	+61 (3) 9268 4101
Product code	452218-US08

2. Hazards identification

Statement of hazardous/dangerous nature NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on ingredients

Synthetic base stock. Proprietary performance additives.

This product does not contain any hazardous ingredients at or above regulated thresholds.

4. First-aid measures

Eye contact	In case of contact, immediately flush eyes with a copious amount of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation develops.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms appear.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.

5. Fire-fighting measures

Extinguishing Media	
Suitable	In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.
Not Suitable	Do not use water jet.
Hazards from combustion products	These products are carbon oxides (CO, CO ₂) (carbon monoxide, carbon dioxide), phosphates.
Special fire-fighting procedures	None identified.
Protection of fire-fighters	Fire-fighters should wear self-contained positive pressure breathing apparatus (SCBA) and full turnout gear.

6 . Accidental release measures

Emergency Procedures	Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (See Section: "Exposure controls/personal protection"). Follow all fire fighting procedures (See Section: "Fire-fighting measures").
Methods and materials for containment and clean-up	If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) scoop up material and place in a sealed, liquid-proof container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal. Minimize contact of spilled material with soils to prevent runoff to surface waterways. See Section 13 for Waste Disposal Information.
Personal protection in case of a large spill	Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

7 . Handling and storage

Handling	Wash thoroughly after handling.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area.
Not Suitable	Prolonged exposure to elevated temperature.
Combustibility Classification	Combustible liquid Class C2 (AS 1940).

8 . Exposure controls/personal protection

Occupational exposure limits	No exposure standard allocated.
Biological Limit Values	No biological limit allocated.
Control Measures	Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.
Hygiene measures	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.
Personal protective equipment	
Respiratory system	None required; however, use of adequate ventilation is good industrial practice.
Skin and body	None required; however, use of protective clothing is good industrial practice.
Hands	None required; however, use of gloves is good industrial practice. Chemical resistant gloves.
Eyes	Safety glasses with side shields.

9 . Physical and chemical properties

Physical state	Liquid.
Colour	Dark Amber.
Odour	Characteristic.
Flash point	262 °C (Open cup) Cleveland.
Pour Point	-57 °C
Boiling point / range	Not available.
Melting point / range	Not available.
Density	997 kg/m ³ (0.997 g/cm ³) at 15.6°C
Vapour density	Not available.
Vapour pressure	Not available.
Solubility	Insoluble in water.
LogK_{ow}	The product is more soluble in octanol; log(octanol/water) >3
pH	Not available.
Relative density	0.997
Viscosity	Kinematic: 27 mm ² /s (27 cSt) at 40°C Kinematic: 5.28 mm ² /s (5.28 cSt) at 100°C

10 . Stability and reactivity

Stability	The product is stable.
Conditions to Avoid	Avoid extreme temperatures, strong oxidizers, fire.
Incompatibility with various substances/Hazardous Reactions	Reactive with oxidising agents, acids, alkalis.
Hazardous polymerization	Will not occur.
Hazardous Decomposition Products	These products are carbon oxides (CO, CO ₂) (carbon monoxide, carbon dioxide), phosphates.

11 . Toxicological information

Acute toxicity	Unlikely to cause more than transient stinging or redness if accidental eye contact occurs. Unlikely to cause harm to the skin on brief or occasional contact but prolonged or repeated exposure may lead to dermatitis. Unlikely to cause harm if accidentally swallowed in small doses, though larger quantities may cause nausea and diarrhoea. At normal ambient temperatures this product will be unlikely to present an inhalation hazard because of its low volatility. May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs.
Chronic toxicity	
Other chronic toxicity data	This product and/or similar products have been evaluated for the potential to cause delayed neurotoxic effects in animals (hens). Groups of hens were administered the product orally at either a single, maximum limit dose of 5 gm/kg, or a repeated maximum limit dose of 1 gm/kg, 5 days per week for 13 weeks. No clinical signs or histopathological evidence of neurotoxicity were observed. Therefore, the use of this product under recommended industrial hygiene practices should not pose a neurotoxic hazard.
Carcinogenic effects	No component of this product at levels greater than or equal to 0.1% is identified as a carcinogen by ACGIH, the International Agency for Research on Cancer (IARC), the European Commission (EC), or the National Occupational Health and Safety Commission (Australia).

12 . Ecological information

Ecotoxicity	Not classified as environmentally hazardous in accordance with the 'Approved Criteria for Classifying Hazardous Substances' [NOHSC (1008)/2004 as amended and adapted].
Persistence/degradability	The biodegradability of this material has not been determined.
Mobility	Spillages may penetrate the soil causing ground water contamination.
Bioaccumulative potential	This product is not expected to bioaccumulate through food chains in the environment.
Other ecological information	Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

13 . Disposal considerations

Disposal Consideration / Waste information	Avoid contact of spilled material and runoff with soil and surface waterways. Consult an environmental professional to determine if local, regional or national regulations would classify spilled or contaminated materials as hazardous waste. Use only approved transporters, recyclers, treatment, storage or disposal facilities. Dispose of in accordance with all applicable local and national regulations.
Special Precautions for Landfill or Incineration	No additional special precautions identified.

14 . Transport information

Not classified as dangerous for transport (ADG, IMDG, ICAO/IATA).

Special precautions for user	No known special precautions required. See Section: "Handling and storage" for additional information.
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15 . Regulatory information

Standard for the Uniform Scheduling of Drugs and Poisons

Ingredient name

No Listed Substance

Schedule

Control of Scheduled Carcinogenic Substances

Ingredient name

No Listed Substance

Schedule

Other Classification Information

Other regulations

Inventories

AUSTRALIAN INVENTORY (AICS): Not listed.

CANADA INVENTORY (DSL): Not listed.

CHINA INVENTORY (IECS): In compliance.

EC INVENTORY (EINECS/ELINCS): In compliance.

JAPAN INVENTORY (ENCS): Contact local supplier or distributor.

KOREA INVENTORY (ECL): Not listed.

PHILIPPINE INVENTORY (PICCS): Not listed.

US INVENTORY (TSCA): In compliance.

16 . Other information

Key to abbreviations

AMP = Acceptable Maximum Peak

ACGIH = American Conference of Governmental Industrial Hygienists, an agency that promulgates exposure standards.

ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail

ADG Code = Australian Code for the Transport of Dangerous Goods by Road and Rail

CAS Number = Chemical Abstracts Service Registry Number

HAZCHEM Code = Emergency action code of numbers and letters which gives information to emergency services. Its use is required by the ADG Code for Dangerous Goods in bulk.

ICAO = International Civil Aviation Organization.

IATA = International Air Transport Association, the organization promulgating rules governing shipment of goods by air.

IMDG = International Maritime Organization Rules, rules governing shipment of goods by water.

IP 346 = A chemical screening assay for dermal toxicity. The European Commission has recommended that Method IP 346 be used as the basis for labelling certain lubricant oil base stocks for carcinogenicity. The EU Commission has stipulated that the classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346. (See Note L, European Commission Directive 67/548/EEC as amended and adapted.) DMSO is a solvent.

NOHSC = National Occupational Health & Safety Commission, Australia

TWA = Time weighted average

STEL = Short term exposure limit

UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.

History

Date of issue 16/05/2006.

Date of previous issue 16/05/2006.

Prepared by Product Stewardship

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from us.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third

Product name BP Turbo Oil 2197

Product code 452218-US08

Page: 4/5

Version 1

Date of issue 16 May 2006

Format Australia

Language ENGLISH

Build 2.4.0

(Australia)

party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken.

Product name BP Turbo Oil 2197

Product code 452218-US08

Page: 5/5

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