

Informal public hearing on OSHA proposal to revise  
the Hazard Communication Standard.

**AFA comments on OSHA's proposed revisions to  
its Hazard Communication Standard**

Presented by:

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Pittsburgh, PA

My name is Chris Witkowski and I am the Director of the Air Safety, Health, and Security Department for the Association of Flight Attendants. AFA is a labor union that represents about 55,000 flight attendants at 22 airlines. I am here to give you our perspective on the proposed revisions to OSHA's Hazard Communication Standard, and I thank you for the opportunity to be here.

To start, you might be thinking that OSHA's Hazard Communication Standard – whether existing or proposed - does not apply to flight attendants anyway because the FAA assumed responsibility for crew occupational safety and health in 1975. However, in 2000, a joint FAA-OSHA working group formally recognized that the FAA has not issued a hazard communication standard of its own, that flight attendants are exposed to chemicals in their workplace, and that airline compliance with OSHA's standard would not compromise flight safety. (See Exhibit 1.)

**Flight attendants need access to standardized chemical hazard information**, just the same as other US workers. With some caveats, AFA supports OSHA's proposal to standardize chemical hazard warnings on labels and safety data sheets in order to make them as user-friendly as possible.

**Flight attendants need training on what to do if they are exposed to hazardous chemicals.** And we agree with OSHA that employee training would support and enhance the efficacy of the new label and SDS requirements. We would add that workers should be trained, not only on the risks of exposure to hazardous chemicals at work, but also on means to mitigate the health impact after exposure.

My comments today will first address some specific questions posed by OSHA in its NPRM, and I will then address the following two points:

- 1) First, AFA recommends that OSHA requires chemical product manufacturers to contemplate all reasonably foreseeable exposures, and then warn of the attendant exposure hazards; and second

- 2) We recommend that OSHA require chemical product manufacturers to list all chemical components of a given product on the label and SDS, not just those components present at greater than 1% by weight.

But first, to the specific questions:

OSHA seeks comments on its proposal to adopt all hazard categories in the globally harmonized chemical classification system (GHS) except for “Acute Toxicity Category 5” (p.50282, column 1). The reason for excluding this hazard category is not clear, but AFA believes that doing so does a disservice to workers. As an example, in aviation, flight attendants may be exposed to large quantities of deicing fluid. There are documented events where a flight attendant gets soaked, literally, with deicing fluid, when sitting on their jumpseat next to a cabin door with a leaking seal. Deicing fluid applicators sometimes accidentally spray the door seal directly and the fluid pours through. Exposed workers have developed acute symptoms immediately, followed by chronic illness. The label and SDS for deicing fluids should acknowledge this route of exposure, list both the acute and chronic health hazards, and train workers on the need to remove soiled clothes, flush their eyes, and shower, all as soon as possible. A SDS without reference to the acute health effects would be incomplete.

OSHA seeks comments on its proposal to standardize and highlight the risk of exposure to asphyxiants (p.50282, columns 1 and 2). AFA supports OSHA’s proposal, but suggests that OSHA add “and reduced pressure environments” to the types of work environments in which exposure to asphyxiants is a particular concern. On commercial flights, for example, airlines may pressurize the cabin to an effective altitude of 8,000 feet which corresponds with 74% of the available oxygen at sea level. Unlike someone who lives in Denver or Mexico City, for example, aircraft occupants have inadequate time to properly acclimate to the reduced pressure environment. As such, exposure to asphyxiant chemicals in flight will exert a greater effect, all other things being equal, than exposure to such chemicals on the ground.

OSHA seeks comments on its proposal to lift the stay on enforcing its current requirement for manufacturers to update labels within three months of obtaining new and significant warning information about health hazards (p.50391). AFA supports this proposal, acknowledges the benefit of applying this standard to SDS, and proposes that the information about health hazards should be available to the public. In aviation, for example, flight attendants and pilots can be exposed to toxic oil fumes that sometimes contaminate the aircraft air supply system if there is an oil leak in an engine compressor, for example. The affected crewmember takes a copy of the oil SDS to their physician. If the health hazard warnings on the SDS do not reflect their symptoms then their doctor is less inclined to attribute their illness to oil fumes. This has serious consequences: first, individual workers' compensation claims are more likely to get denied, and second, the process of getting the health impact of exposure to engine oil fumes recognized as a valid industrial illness is slowed. Three months seems ample time for a manufacturer to revise any label or SDS.

In its proposal, OSHA describes how manufacturers are responsible for evaluating the health impact of exposure to chemicals, and then transmitting that information to employees (p.50286, column 2). AFA proposes that OSHA be more explicit about the need for manufacturers to consider all reasonably foreseeable uses of the product and potential exposures. For example, in aviation, aircraft maintenance workers may have dermal or inhalation exposure to engine oil when filling an oil reservoir or repairing an engine, for example. But in addition, as stated above, flight attendants and pilots can inhale oil fumes supplied to the cabin and flight deck via the ventilation system. However, the MSDSs for these engine oil products either ignore or downplay this exposure pathway. Few refer to the fact that toxic fumes can be evolved when oils are exposed to high temperatures (which happens in the engines), and none acknowledge the potential for inhalation exposure to TCP oil additives to induce delayed and chronic neurological symptoms. Instead, engine oil manufacturers base their hazard warnings on the results of studies in which test animals either ingest the oils (with feeding tubes) or have patches of their skin exposed. However, flight attendants and pilots are not ingesting

the oils, nor are they painting it on their skin. They are inhaling it, and oil manufacturers should be required to properly assess and report on the toxicity of this exposure pathway.

It is our understanding that manufacturers need not report hazardous chemicals if they are present at less than 1%, by weight, with a 0.1% minima for carcinogens. AFA would like to recommend that OSHA either remove this 1% “cut off” or reduce it by a factor of ten. As I have said, crew and passengers can inhale neurotoxic TCP oil additives on aircraft when oil fumes contaminate the air supply system. There are ten isomers of TCP, and presumably, because the one TCP isomer that OSHA regulates is present at less than 1% by weight in aviation engine oils, oil manufacturers need not report the content of that one isomer. And, presumably, because OSHA has not published a PEL for the remaining nine TCP isomers, oil companies need not report their presence either. This, even though peer-reviewed articles state that some of the other nine TCP isomers are five to ten times more toxic than the one regulated isomer. As a result, the US version of the MSDS for one widely-used aviation engine oil states that it contains “no hazardous ingredients at or above regulated thresholds” while the MSDS for the same product marketed in South Africa and Germany, for example, reports 5-10% TCPs (potent neurotoxins) and 1-5% n-phenyl-1-naphthylamine (a potent sensitizer). (See Exhibits 2-4.) Same product, different reporting requirements, with US workers losing out. OSHA needs to promulgate and enforce a more strict reporting requirement so that employees have more complete information on chemical exposures in the workplace.

Once the revised HCS is published, AFA calls on OSHA to more strictly enforce it. To do so will require more money dedicated to this issue. In 2004, AFA filed a complaint with OSHA, suggesting that Exxon-Mobil had violated the HCS by removing neurological health hazard warning language from the MSDS of its various engine oils without basis. Later that year, OSHA agreed that Exxon-Mobil had violated the HCS. It issued a citation and ordered Exxon-Mobil to reinstate the language. But Exxon-Mobil challenged the citation and because OSHA lacked the resources to fight, it had to settle. To this day, the neurological health hazard warning language on the MSDSs for US

aviation engine oils does not reflect the true hazards because the language is based on irrelevant and incomplete research.

In closing, we call on OSHA to enforce its HCS for all workers, regardless of the OSH Act Part 4(b)(1) exemption that has left flight attendants without workplace safety and health protections since 1975. As the FAA itself acknowledged 25 years after it assumed jurisdiction over crew safety and health, the agency does not have an equivalent to the HCS, crewmembers are exposed to chemicals in their workplace, and enforcing the HCS standard in aviation would not compromise flight safety. AFA would add that providing crewmembers with accurate, comprehensive, clear health hazard information on chemicals in their workplace, and training them to recognize and address chemicals hazards, would strengthen aviation safety, for the benefit of all.

Thank you for the chance to speak today.

**EXHIBIT 1**

**“First report: Application of OSHA’s requirements  
to employees on aircraft in operation” (excerpt)**

**FAA/OSHA Aviation Safety & Health Team  
First Report**

**December 2000  
Washington, DC**

# FAA / OSHA

## Aviation Safety and Health Team

### First Report

**Application of OSHA's Requirements to  
Employees on Aircraft in Operation**

December 2000



# FAA/OSHA Aviation Safety and Health Team (First Report)

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## **Executive Summary**

On August 7, 2000 the Federal Aviation Administration (FAA), U.S. Department of Transportation (DOT) entered into a Memorandum of Understanding (MOU) with the Occupational Safety and Health Administration (OSHA), U.S. Department of Labor (DOL). The purpose of the MOU is to enhance safety and health in the aviation industry. In the MOU, FAA and OSHA agreed to establish a joint team (FAA/OSHA Aviation Safety and Health Team) to identify the factors to be considered in determining whether OSHA requirements can be applied to the working conditions of employees on aircraft in operation (other than flight deck crew) without compromising aviation safety.

The MOU calls for the joint team to produce a first report, within 120 days of the date of execution of the MOU, that addresses whether and to what extent OSHA's existing standards and regulations on recordkeeping, bloodborne pathogens, noise, sanitation, hazard communication, anti-discrimination, and access to employee exposure/medical records may be applied to employees on aircraft in operation (other than flight deck crew) without compromising aviation safety.

This report fulfills the objectives identified in the MOU. It is not intended to modify, supplement, or replace any federal standard, policy, or legal interpretation. Matters for further consideration are included to provide a framework for addressing the ultimate goals established in the MOU.

With respect to the seven subject areas, the joint team reached the following conclusions regarding the impact of applying the relevant standards and regulations on the safety of aircraft in operation:

### **1. Recordkeeping.**

OSHA's existing regulations on recording and reporting occupational injuries and illness are applicable to all employees in the aviation industry. Compliance with these regulations does not implicate aviation safety concerns.

### **2. Bloodborne Pathogens.**

The requirements of OSHA's bloodborne pathogens standard concerning hepatitis B vaccinations, personal protective equipment (PPE), and exposure training could be applied to employees on aircraft in operation (other than flight deck crew) without compromising aviation safety. However, OSHA requirements that necessitate engineering and administrative controls may implicate aviation safety and would need to be subject to FAA approval.

### **3. Noise.**

The training and testing requirements of OSHA's standard on occupational exposure to noise could be applied to employees on aircraft in operation (other than flight deck crew) without compromising aviation safety. However, requirements that necessitate the use of engineering

and administrative controls and PPE would implicate aviation safety concerns. Any such controls should be subject to FAA's approval.

#### **4. Sanitation.**

Since OSHA's sanitation standard is flexible and performance-oriented, it could be applied to aircraft in operation without compromising aviation safety. However, sanitary conditions on aircraft are regulated by several federal agencies in addition to FAA, and any consideration of applying OSHA requirements must be informed by a discussion of the effects of multi-agency regulation.

#### **5. Hazard Communication.**

Compliance with OSHA's Hazard Communication Standard would not compromise aviation safety. Under the various circumstances the team has considered, employers could comply with the standard's requirements while remaining sensitive to flight safety concerns.

#### **6. Anti-discrimination.**

OSHA's anti-discrimination provisions could be applied to employees on aircraft in operation (other than flight deck crew) without compromising aviation safety. Although the OSH Act has been interpreted to provide employees with the right to refuse to perform work tasks in certain limited situations, the team can conceive of few scenarios in which a safety or health hazard associated with the standards considered in this report would present the immediacy and degree of danger required to justify a work refusal protected under the OSH Act.

#### **7. Access to employee exposure and medical records.**

OSHA's standard on access to employee exposure and medical records does not regulate working conditions. Compliance with the standard does not compromise aviation safety.

## **Issue Five: Hazard Communication**

### **Application of OSHA's Hazard Communication Standard (29 CFR § 1910.1200) to Employees on Aircraft in Operation (other than flight deck crew)**

#### **1. OSHA Regulations.** *Provisions and requirements of OSHA's Hazard Communication Standard Regulations.*

*The following discussion is a general overview of the standard's requirements that likely could be most pertinent to employees working on an aircraft in operation other than flight deck crewmembers. This discussion is not intended to modify, supplement, or replace the requirements specifically listed in the standard. See 29 CFR § 1910.1200.*

The Hazard Communication Standard is a performance-oriented standard that requires employers to transmit information to their employees on the hazards of chemicals to which they may be exposed under normal working conditions or in a foreseeable emergency. It applies to any chemical known to be present in the workplace. While chemical manufacturers, importers, and distributors of hazardous chemicals have extensive responsibilities related to evaluation and communication of hazards, employers that only use hazardous chemicals must follow a far less detailed set of requirements. Under the terms of the standard, "use" refers to packaging, handling, reacting, emitting, extracting, generating as a byproduct, or transferring the chemicals. Employers, such as airlines, that do not manufacture, import, or distribute chemicals may be required to establish a written hazard communication program, and ensure labeling on containers, availability of Material Safety Data Sheets (MSDS), and provisions for transmitting information and employee training.

A hazard communication program must describe how the employer will meet the standard's labeling, MSDS, and information and training requirements. In addition, the program must include a list of hazardous chemicals in the workplace and describe the methods the employer will use to inform employees of the hazards of non-routine tasks. Multi-employer worksites (which include leased aircraft with crews, known as "wet lease arrangements") must also explain the employer's methods for providing other employers onsite access to MSDS, for informing other employers of precautionary measures to protect employees during normal operating conditions and in a foreseeable emergency, and for informing other employees of the labeling system used in the workplace. For employees who work in multiple geographical locations (e.g., crewmembers), the hazard communication program may be kept at the primary workplace facility (e.g., airline crew base).

Employers whose employees use hazardous chemicals must ensure that containers are labeled or marked with information pertaining to the identity of the chemicals and warnings concerning their hazards. Employers are prohibited from removing or defacing labels on hazardous chemical containers, and must ensure all information on the containers is written in legible English.

The standard requires that employers have an MSDS in the workplace for each hazardous chemical. However, the standard is not rigid in regard to the specific form of the information communicated in the MSDS. Also, electronic access, microfiche, and other alternatives to maintaining paper copies of the MSDS are allowed. Where employees must travel between workplaces during a work-shift, as in the case for crewmembers, MSDS may be kept at a primary workplace facility. In this situation, employers shall ensure that employees can readily obtain the required information. Employers are responsible for obtaining MSDS for all hazardous chemicals to which their employees may be exposed, even if the MSDS is not received with the original shipment of the chemicals. The manufacturer or importer is required to provide this information upon request.

Employers must provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new hazard is introduced into the work area. Required information includes applicable provisions of the Hazard Communication Standard, information about operations in the work area where hazardous chemicals are present, and the location and availability of the hazard communication program. At minimum, the training must include methods for detecting the presence of a hazardous chemical in the work area, specific hazards of the chemicals in the work area, protective measures available to employees, and the details of the employer's hazard communication program.

**2. State OSHA Program Variations.** *The variations on Federal OSHA's Hazard Communication Standard that have been adopted by states pursuant to 29 U.S.C. § 667.*

Fourteen of the 23 states that operate OSHA-approved state plans have adopted hazard communication standards identical to the federal standard. Nine states – Alaska, California, Iowa, Maryland, Michigan, Minnesota, New Mexico, Tennessee, and Washington -- adopted different standards. The state standards for all but three of these nine track the federal standard, but with some additional requirements. For example, Alaska's standard extends to certain physical agents and requires employers to make available state-provided MSDS for them, but is in all other ways identical to the federal standard.

California, Minnesota, and Washington adopted standards that differ considerably from federal OSHA's standard. While California's warning requirements are similar to those of the federal standard, California provides a supplemental judicial enforcement mechanism, including actions brought by private citizens. Minnesota enforces its Employee Right-to-Know rule instead of the federal Hazard Communication standard. This rule covers harmful physical agents and infectious agents, as well as hazardous substances, and requires annual refresher training in addition to initial training. Washington's standard differs from the federal standard in two areas: (1) the Washington standard does not exempt nuisance particulates from coverage; and (2) employers must follow state Permissible Exposure Levels (PELs) for evaluation of employee exposures and training.

**3. Other Federal Agency Standards.** *Whether FAA or other federal agencies have standards or regulations that mandate Hazard Communication.*

Although FAA has no equivalent to the Hazard Communication Standard, the Hazardous Materials Transportation Act (HMTA) (codified at 49 U.S.C. §§ 5101 et seq.) and the Hazardous Materials Regulations (HMR) (49 CFR parts 171-190) issued pursuant to HMTA address the communication of hazards within the context of hazardous materials handling. HMTA contains “reverse 4(b)(1)” language that precludes DOT preemption on hazardous materials handling. This broad interpretation of the preemption preclusion clause in 49 U.S.C. § 5107(f)(2) was upheld by the Review Commission in *Secretary of Labor v. Yellow Freight Systems*, OSHRC Docket No. 93-3292 (July 31, 1996). In its current form, the “reverse 4(b)(1)” language reads: “An action of the Secretary of Transportation under subsections [concerned with training, hazardous materials handling, and vehicle registration] . . . is not an exercise, under § 4(b)(1) of the Occupational Safety and Health Act of 1970 . . . of statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health.” (49 U.S.C. § 5107(f)(2))

Notwithstanding the HMTA’s hazardous materials handling preemption preclusion clause, HMR contains training, handling, and labeling requirements (49 CFR §§ 172.700 et seq., 172.400 et seq., and 175.40). Other HMR provisions may also impact the occupational safety and health of airline employees. The regulations set out specifications for de-icing (using hazardous chemicals) and contents for first aid and emergency medical kits. The de-icing program regulations are set out at 14 CFR § 121.629. Required contents for emergency medical and first aid kits are set out at 14 CFR §§ 121.309, Appendix A. The emergency medical kit contains several substances that could fall under the coverage of OSHA’s Hazard Communication Standard. The regulations specifically exclude several substances, including fuel and compressed oxygen, from FAA’s hazardous materials handling requirements. (See 49 CFR § 175.10.)

**4. Hazards to Employees.** *The illnesses, injuries, or other hazards to employees on aircraft in operation which may result from chemical hazards addressed by the Hazard Communication Standard.*

The joint FAA/OSHA Aviation Safety and Health team has identified several hazards that may be addressed by OSHA’s Hazard Communication Standard. These include hazards posed by commercial cleaning agents, jet fuel vapors and combustion bi-products, de-icing chemicals, compressed oxygen, and medication contained in emergency medical kits. Employees may come into contact with cleaning agents following their application by airline cleaning personnel between flights, and in the event of a spill or passenger emergency during flight that requires an employee’s immediate attention. Vapors from jet fuel and de-icing chemicals may enter an aircraft cabin, presenting a potential hazard to persons inside the cabin. Employees may come into contact with compressed oxygen or certain medications in the event of an emergency.

**5. Aviation Safety.** *The effect on aviation safety of the application of OSHA's Hazard Communication Standard.*

The team concludes that compliance with OSHA's Hazard Communication Standard would not compromise aviation safety. Under the various circumstances that the team has considered, employers could comply with the requirements of the standard, while remaining sensitive to flight safety concerns.

**EXHIBIT 2**

**MATERIAL SAFETY DATA SHEET FOR  
BP2380 AVIATION ENGINE OIL (UNITED STATES)**

Note Section 3:

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





## 1. Product and company identification

<b>Product name</b>	BP Turbo Oil 2380
<b>MSDS #</b>	452219
<b>Historic MSDS #:</b>	0000000070
<b>Code</b>	452219-US08
<b>Product use</b>	Turbine Oil For specific application advice see appropriate Technical Data Sheet or consult our company representative.
<b>Supplier</b>	Air BP Lubricants Maple Plaza II - 1N Six Campus Drive Parsippany, NJ 07054 U.S.A.
<b>EMERGENCY HEALTH INFORMATION:</b>	1 (800) 447-8735 Outside the US: +1 630-961-6958
<b>EMERGENCY SPILL INFORMATION:</b>	1 (800) 424-9300 CHEMTREC (USA) Outside the US: +1 703-527-3887
<b>OTHER PRODUCT INFORMATION</b>	1 (866) 4 BP - MSDS (866-427-6737 Toll Free - North America) email: bpcares@bp.com

## 2. Hazards identification

<b>Physical state</b>	Liquid.
<b>Color</b>	Amber.
<b>Emergency overview</b>	CAUTION !  MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.  In accordance with good industrial hygiene and safety work practices, airborne exposures should be controlled to the lowest extent practicable. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
<b>Routes of entry</b>	Dermal contact. Eye contact. Inhalation. Ingestion.
<b>Potential health effects</b>	
<b>Eyes</b>	May cause eye irritation.
<b>Skin</b>	May cause skin irritation.
<b>Inhalation</b>	May cause respiratory tract irritation.
<b>Ingestion</b>	Ingestion may cause gastrointestinal irritation and diarrhea.
<b>See toxicological information (section 11)</b>	

<b>Product name</b> BP Turbo Oil 2380	<b>Product code</b> 452219-US08	<b>Page:</b> 1/6
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### 3. Composition/information on ingredients

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

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### 4. First aid measures

<b>Eye contact</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
<b>Skin contact</b>	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.
<b>Inhalation</b>	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
<b>Ingestion</b>	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If potentially dangerous quantities of this material have been swallowed, call a physician immediately. Get medical attention if symptoms occur.

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### 5. Fire-fighting measures

<b>Flash point</b>	Open cup: 265°C (509°F) [Cleveland. ]
<b>Fire/explosion hazards</b>	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Extinguishing media</b>	
<b>Suitable</b>	Use an extinguishing agent suitable for the surrounding fire.
<b>Not suitable</b>	Do not use water jet.
<b>Fire-fighting procedures</b>	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
<b>Hazardous combustion products</b>	Combustion products may include the following: phosphorus oxides carbon oxides (CO, CO <sub>2</sub> ) (carbon monoxide, carbon dioxide) nitrogen oxides (NO, NO <sub>2</sub> etc.)
<b>Protective clothing (fire)</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

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### 6. Accidental release measures

<b>Personal precautions</b>	No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. In accordance with good industrial hygiene and safety work practices, airborne exposures should be controlled to the lowest extent practicable. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
<b>Environmental precautions</b>	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).
<b>Methods for cleaning up</b>	
<b>Large spill</b>	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). 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.
<b>Small spill</b>	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Product name** BP Turbo Oil 2380

**Product code** 452219-US08

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**Version** 2      **Date of issue** 08/23/2008.

**Format** US

**Language** ENGLISH.

(US)

(ENGLISH)

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## 7. Handling and storage

<b>Handling</b>	Put on appropriate personal protective equipment (see section 8). Workers should wash hands and face before eating, drinking and smoking. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate.
<b>Storage</b>	Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10). 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.
<b>Not suitable</b>	Prolonged exposure to elevated temperature

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## 8. Exposure controls/personal protection

### Occupational exposure limits

Some states may enforce more stringent exposure limits.

<b>Control Measures</b>	Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
<b>Hygiene measures</b>	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.
<b>Personal protection</b>	
<b>Eyes</b>	Avoid contact with eyes. Safety glasses with side shields or chemical goggles. Recommended: safety glasses with side-shields
<b>Skin and body</b>	Avoid contact with skin and clothing. Wear suitable protective clothing.
<b>Respiratory</b>	Use adequate ventilation. In accordance with good industrial hygiene and safety work practices, airborne exposures should be controlled to the lowest extent practicable.
<b>Hands</b>	The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.  Consult your supervisor or S.O.P. for special handling instructions.

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## 9. Physical and chemical properties

<b>Physical state</b>	Liquid.
<b>Color</b>	Amber.
<b>Odor</b>	Characteristic.
<b>Flash point</b>	Open cup: 265°C (509°F) [Cleveland. ]
<b>Density</b>	980 kg/m <sup>3</sup> (0.98 g/cm <sup>3</sup> ) at 15.6°C
<b>Viscosity</b>	Kinematic: 24.2 mm <sup>2</sup> /s (24.2 cSt) at 40°C Kinematic: 4.97 mm <sup>2</sup> /s (4.97 cSt) at 100°C
<b>Solubility</b>	Insoluble in water.

**Product name** BP Turbo Oil 2380

**Product code** 452219-US08

**Page:** 3/6

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**Language** ENGLISH.

(US)

(ENGLISH)

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## 10. Stability and reactivity

<b>Stability and reactivity</b>	The product is stable.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	Keep away from heat, sparks and flame.
<b>Incompatibility with various substances</b>	Reactive or incompatible with the following materials: oxidizing materials, acids and alkalis.
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Hazardous polymerization</b>	Under normal conditions of storage and use, hazardous polymerization will not occur.

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## 11. Toxicological information

**Other 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.

### Other information

#### Potential chronic health effects

**Carcinogenicity** No known significant effects or critical hazards.

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## 12. Ecological information

No testing has been performed by the manufacturer.

<b>Persistence/degradability</b>	Inherently biodegradable
<b>Mobility</b>	Spillages may penetrate the soil causing ground water contamination.
<b>Bioaccumulative potential</b>	This product is not expected to bioaccumulate through food chains in the environment.
<b>Other ecological information</b>	Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

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## 13. Disposal considerations

**Waste information** The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**NOTE: The generator of waste has the responsibility for proper waste identification (based on characteristic(s) or listing), transportation and disposal**

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## 14. Transport information

Not classified as hazardous for transport (DOT, TDG, IMO/IMDG, IATA/ICAO)

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		<b>Language</b> ENGLISH.
		(US) (ENGLISH)

## 15. Regulatory information

### U.S. Federal Regulations

#### United States inventory (TSCA 8b)

All components are listed or exempted.

TSCA 12(b) one-time export: Diphenylamine

**SARA 302/304/311/312 extremely hazardous substances:** No products were found.

**SARA 302/304 emergency planning and notification:** No products were found.

**SARA 302/304/311/312 hazardous chemicals:** Tricresyl phosphate

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:** BP Turbo Oil 2380: Immediate (acute) health hazard, Delayed (chronic) health hazard

#### SARA 313

#### Form R - Reporting requirements

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

#### Supplier notification

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

#### CERCLA Sections 102a/103 Hazardous Substances (40 CFR Part 302.4):

CERCLA: Hazardous substances.: 1-Naphthylamine: 100 lbs. (45.4 kg); 2-Naphthylamine: 10 lbs. (4.54 kg); Aniline: 5000 lbs. (2270 kg);

### State regulations

#### Massachusetts Substances

None of the components are listed.

#### New Jersey Hazardous Substances

The following components are listed: TRICRESYLPHOSPHATE

#### Pennsylvania RTK Hazardous Substances

None of the components are listed.

#### California Prop. 65

**WARNING:** This product contains a chemical known to the State of California to cause cancer. 1-Naphthylamine; 2-Naphthylamine; Aniline

### Inventories

#### Canada inventory

All components are listed or exempted.

#### Europe inventory

All components are listed or exempted.

#### Australia inventory (AICS)

At least one component is not listed.

#### China inventory (IECSC)

All components are listed or exempted.

#### Japan inventory (ENCS)

At least one component is not listed.

#### Korea inventory (KECI)

All components are listed or exempted.

#### Philippines inventory (PICCS)

All components are listed or exempted.

## 16. Other information

### Label requirements

CAUTION !

MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

### HMIS® Rating :

**Health** 1  
**Flammability** 1  
**Physical Hazard** 0  
**Personal protection** X

**National Fire Protection Association (U.S.A.)**



### History

#### Date of issue

08/23/2008.

**Product name** BP Turbo Oil 2380

**Product code** 452219-US08

**Page:** 5/6

**Version** 2 **Date of issue** 08/23/2008.

**Format** US  
(US)

**Language** ENGLISH.  
(ENGLISH)

**Date of previous issue** 08/23/2008.

**Prepared by** Product Stewardship

**Notice to reader**

*NOTICE : This Material Safety Data Sheet is based upon data considered to be accurate at the time of its preparation. Despite our efforts, it may not be up to date or applicable to the circumstances of any particular case. We are not responsible for any damage or injury resulting from abnormal use, from any failure to follow appropriate practices or from hazards inherent in the nature of the product.*

<b>Product name</b> BP Turbo Oil 2380	<b>Product code</b> 452219-US08	<b>Page:</b> 6/6
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	(US)	<b>Language</b> ENGLISH. (ENGLISH)

**EXHIBIT 3**

**MATERIAL SAFETY DATA SHEET FOR  
BP2380 AVIATION ENGINE OIL (GERMANY)**

Note Section 3 reports that this product contains:  
“tricresylphosphates 5-10% and n-phenyl-1-naphthylamine 1-5%”



## 1. Identification of the substance/preparation and company/undertaking

<b>Product name</b>	<b>BP Turbo Oil 2380</b>
<b>SDS no.</b>	452219
<b>Historic SDS no.</b>	000000070
<b>Use of the substance/preparation</b>	Turbine Oil For specific application advice see appropriate Technical Data Sheet or consult our company representative.
<b>Supplier</b>	Deutsche BP Aktiengesellschaft Max-Born-Strasse 2 D-22761 Hamburg Germany Telefon: (+49) 040-6395-0
<b>EMERGENCY TELEPHONE NUMBER</b>	Telephone (+49) 040-6395-2006 Telephone (+49) 040-6395-2306
<b>E-mail address</b>	MSDSadvice@bp.com

## 2. Hazards identification

This preparation is not classified as dangerous according to Directive 1999/45/EC as amended and adapted.

See sections 11 and 12 for more detailed information on health effects and symptoms and environmental hazards.

## 3. Composition/information on ingredients

Synthetic base stock. Proprietary performance additives.

Chemical name	CAS no.	%	EINECS / ELINCS.	Classification
tricresyl phosphate	1330-78-5	5 - 10	215-548-8	Xn; R21/22 N; R51/53 [1]
n-phenyl-1-naphthylamine	90-30-2	1 - 5	201-983-0	Xn; R22 R43 N; R50/53 [1]

See section 16 for the full text of the R-phrases declared above

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] PBT-substance

[4] vPvB-substance

Occupational exposure limits, if available, are listed in section 8.

## 4. First-aid measures

<b>Eye contact</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
<b>Skin contact</b>	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.
<b>Inhalation</b>	If inhaled, remove to fresh air. Get medical attention if symptoms appear.
<b>Ingestion</b>	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If potentially dangerous quantities of this material have been swallowed, call a physician immediately.
<b>Notes to physician</b>	Treatment should in general be symptomatic and directed to relieving any effects.

## 5. Fire-fighting measures

<b>Extinguishing media</b>	
<b>Suitable</b>	In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.
<b>Not suitable</b>	Do not use water jet.
<b>Hazardous decomposition products</b>	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides
<b>Special fire-fighting procedures</b>	None identified.



## 6. Accidental release measures

<b>Personal precautions</b>	⚠ 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. Put on appropriate personal protective equipment (see section 8).
<b>Environmental precautions</b>	⚠ 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).
<b>Large spill</b>	⚠ Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. 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). Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.
<b>Small spill</b>	⚠ Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## 7. Handling and storage

<b>Handling</b>	Wash thoroughly after handling.
<b>Storage</b>	Keep container tightly closed. Keep container in a cool, well-ventilated area.
<b>Not suitable</b>	Prolonged exposure to elevated temperature

## 8. Exposure controls/personal protection

<b>Occupational exposure limits</b>	This product does not have any assigned OELs.
<b>Exposure controls</b>	
<b>Occupational exposure controls</b>	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective occupational exposure limits.
<b>Hygiene measures</b>	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.
<b>Personal protective equipment</b>	
<b>Respiratory protection</b>	Respiratory protective equipment is not normally required where there is adequate natural or local exhaust ventilation to control exposure. In case of insufficient ventilation, wear suitable respiratory equipment. Respiratory protective equipment must be checked to ensure it fits correctly each time it is worn.  Air-filtering respirators, also called air-purifying respirators, will not be adequate under conditions of oxygen deficiency (i.e. low oxygen concentration), and would not be considered suitable where airborne concentrations of chemicals with a significant hazard are present. In these cases air-supplied breathing apparatus will be required.  Provided an air-filtering/air-purifying respirator is suitable, a filter for particulates can be used for mist or fume. Use filter type P or comparable standard. A combination filter for particles and organic gases and vapours (boiling point >65°C) may be required if vapour or abnormal odour is also present due to high product temperature. Use filter type AP or comparable standard.
<b>Hand protection</b>	Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves.  Recommended: nitrile gloves  Protective gloves will deteriorate over time due to physical and chemical damage. Inspect and replace gloves on a regular basis. The frequency of replacement will depend upon the circumstances of use.
<b>Eye protection</b>	Safety glasses with side shields.
<b>Skin and body</b>	Use of protective clothing is good industrial practice.  Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

## 9. Physical and chemical properties

### General information

#### Appearance

<b>Physical state</b>	Liquid.
<b>Colour</b>	Amber.
<b>Odour</b>	Characteristic.

### Important health, safety and environmental information

<b>Flash point</b>	⚠ Open cup: 265°C (509°F) [Cleveland. ]
<b>Viscosity</b>	Kinematic: 24.2 mm <sup>2</sup> /s (24.2 cSt) at 40°C Kinematic: 4.97 mm <sup>2</sup> /s (4.97 cSt) at 100°C
<b>Pour point</b>	-57 °C
<b>Density</b>	980 kg/m <sup>3</sup> (0.98 g/cm <sup>3</sup> ) at 15.6°C
<b>Solubility</b>	⚠ Insoluble in water.

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			(Germany)		( ENGLISH )

## 10 . Stability and reactivity

<b>Stability</b>	<input checked="" type="checkbox"/> The product is stable.
<b>Possibility of hazardous reactions</b>	<input checked="" type="checkbox"/> Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	<input checked="" type="checkbox"/> Avoid all possible sources of ignition (spark or flame).
<b>Materials to avoid</b>	<input checked="" type="checkbox"/> Reactive or incompatible with the following materials: oxidizing materials.
<b>Hazardous decomposition products</b>	<input checked="" type="checkbox"/> Combustion products may include the following: carbon oxides nitrogen oxides phosphorus oxides <input checked="" type="checkbox"/> Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11 . Toxicological information

<b>Acute toxicity</b>	<input checked="" type="checkbox"/> 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. Product not classified for sensitisation. Based on data available for this or related materials.  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.
<b>Chronic toxicity</b>	
<b>Chronic effects</b>	<input checked="" type="checkbox"/> No known significant effects or critical hazards.
<b>Effects and symptoms</b>	
<b>Eyes</b>	No significant health hazards identified.
<b>Skin</b>	No significant health hazards identified.
<b>Inhalation</b>	No significant health hazards identified.
<b>Ingestion</b>	No significant health hazards identified.

## 12 . Ecological information

<b>Persistence/degradability</b>	Inherently biodegradable
<b>Mobility</b>	<input checked="" type="checkbox"/> Spillages may penetrate the soil causing ground water contamination.
<b>Bioaccumulative potential</b>	This product is not expected to bioaccumulate through food chains in the environment.
<b>Environmental hazards</b>	Not classified as dangerous.
<b>Other ecological information</b>	Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

## 13 . Disposal considerations

<b>Disposal considerations / Waste information</b>	<input checked="" type="checkbox"/> The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
<b>Unused product</b>	
<b>European waste catalogue (EWC)</b>	<input checked="" type="checkbox"/> 3 02 06* synthetic engine, gear and lubricating oils However, deviation from the intended use and/or the presence of any potential contaminants may require an alternative waste disposal code to be assigned by the end user.

## 14 . Transport information

Not classified as hazardous for transport (ADR/RID, ADNR, IMDG, ICAO/IATA)

## 15 . Regulatory information

Classification and labelling have been performed according to EU directives 1999/45/EC and 67/548/EEC as amended and adapted.

### Label requirements

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				(Germany)	( ENGLISH )

**Risk phrases**

This product is not classified according to EU legislation.

**Additional warning phrases**

Contains n-phenyl-1-naphthylamine. May produce an allergic reaction. Safety data sheet available for professional user on request.

**Other regulations****Europe inventory** All components are listed or exempted.**United States inventory (TSCA 8b)** All components are listed or exempted.**Australia inventory (AICS)** At least one component is not listed.**Canada inventory** All components are listed or exempted.**China inventory (IECSC)** All components are listed or exempted.**Japan inventory (ENCS)** At least one component is not listed.**Korea inventory (KECI)** All components are listed or exempted.**Philippines inventory (PICCS)** All components are listed or exempted.**Hazard Class for water (WGK), according to VwVwS** Appendix No. 4**16 . Other information****Full text of R-phrases referred to in sections 2 and 3** R22- Harmful if swallowed.

R21/22- Harmful in contact with skin and if swallowed.

R43- May cause sensitisation by skin contact.

R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**History****Date of issue/ Date of revision**

18/11/2008.

**Date of previous issue**

16/08/2007.

**Prepared by**

Product Stewardship Group

**Notice to reader** Indicates information that has changed from previously issued version.

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 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.

**EXHIBIT 4**

**MATERIAL SAFETY DATA SHEET FOR  
BP2380 AVIATION ENGINE OIL (SOUTH AFRICA)**

Note Section 3 reports that this product contains:  
“tricresylphosphates 5-10% and n-phenyl-1-naphthylamine 1-5%”



## 1. Identification of the substance/preparation and company/undertaking

<b>Product name</b>	<b>BP Turbo Oil 2380</b>
<b>SDS no.</b>	452219
<b>Historic SDS no.</b>	0000000070
<b>Use of the substance/preparation</b>	Turbine Oil For specific application advice see appropriate Technical Data Sheet or consult our company representative.
<b>Supplier</b>	BP Southern Africa(Pty) Ltd 10 Junction Avenue Parktown Johannesburg South Africa 2193  Product Technical Helpdesk: 0800 111 551
<b>EMERGENCY TELEPHONE NUMBER</b>	+27 (0)860 222166 Tygerberg Poison Centre: +27 (0)21 931 6129
<b>E-mail address</b>	MSDSadvice@bp.com

## 2. Hazards identification

This preparation is not classified as dangerous according to Directive 1999/45/EC as amended and adapted.  
See sections 11 and 12 for more detailed information on health effects and symptoms and environmental hazards.

## 3. Composition/information on ingredients

Synthetic base stock. Proprietary performance additives.

<b>Chemical name</b>	<b>CAS no.</b>	<b>%</b>	<b>EINECS / ELINCS.</b>	<b>Classification</b>
Tricresyl phosphate	1330-78-5	5 - 10	215-548-8	Xn; R21/22 N; R51/53 [1]
n-phenyl-1-naphthylamine	90-30-2	1 - 5	201-983-0	Xn; R22 R43 N; R50/53 [1]

See section 16 for the full text of the R-phrases declared above

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] PBT-substance

[4] vPvB-substance

Occupational exposure limits, if available, are listed in section 8.

## 4. First-aid measures

<b>Eye contact</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
<b>Skin contact</b>	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.
<b>Inhalation</b>	If inhaled, remove to fresh air. Get medical attention if symptoms appear.
<b>Ingestion</b>	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If potentially dangerous quantities of this material have been swallowed, call a physician immediately.
<b>Notes to physician</b>	Treatment should in general be symptomatic and directed to relieving any effects.

## 5. Fire-fighting measures

<b>Extinguishing media</b>	
<b>Suitable</b>	In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.
<b>Not suitable</b>	Do not use water jet.
<b>Hazardous decomposition products</b>	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides

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				<b>Language</b>	ENGLISH ( ENGLISH )

**Special fire-fighting procedures**

None identified.

**Protection of fire-fighters**

Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

**6 . Accidental release measures****Personal precautions**

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. Put on appropriate personal protective equipment (see section 8).

**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).

**Large spill**

Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. 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). Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

**Small spill**

Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**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

**8 . Exposure controls/personal protection****Occupational exposure limits**

This product does not have any assigned OELs.

**Exposure controls****Occupational exposure controls**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours 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 protection**

Respiratory protective equipment is not normally required where there is adequate natural or local exhaust ventilation to control exposure.

In case of insufficient ventilation, wear suitable respiratory equipment.

Respiratory protective equipment must be checked to ensure it fits correctly each time it is worn.

Air-filtering respirators, also called air-purifying respirators, will not be adequate under conditions of oxygen deficiency (i.e. low oxygen concentration), and would not be considered suitable where airborne concentrations of chemicals with a significant hazard are present. In these cases air-supplied breathing apparatus will be required.

Provided an air-filtering/air-purifying respirator is suitable, a filter for particulates can be used for mist or fume. Use filter type P or comparable standard. A combination filter for particles and organic gases and vapours (boiling point &gt;65°C) may be required if vapour or abnormal odour is also present due to high product temperature. Use filter type AP or comparable standard.

**Hand protection**

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves.

Recommended: nitrile gloves

Protective gloves will deteriorate over time due to physical and chemical damage. Inspect and replace gloves on a regular basis. The frequency of replacement will depend upon the circumstances of use.

**Eye protection**

Safety glasses with side shields.

**Skin and body**

Use of protective clothing is good industrial practice.

Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

**Personal protective equipment (Pictograms)****9 . Physical and chemical properties****General information****Appearance****Physical state**

Liquid.

**Colour**

Amber.

**Odour**

Characteristic.

**Important health, safety and environmental information****Flash point**

Open cup: 265°C (509°F) [Cleveland. ]

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				<b>Language</b>	ENGLISH
					( ENGLISH )

<b>Viscosity</b>	Kinematic: 24.2 mm <sup>2</sup> /s (24.2 cSt) at 40°C Kinematic: 4.97 mm <sup>2</sup> /s (4.97 cSt) at 100°C
<b>Pour point</b>	-57 °C
<b>Density</b>	980 kg/m <sup>3</sup> (0.98 g/cm <sup>3</sup> ) at 15.6°C
<b>Solubility</b>	insoluble in water.

## 10 . Stability and reactivity

<b>Stability</b>	The product is stable.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	Avoid all possible sources of ignition (spark or flame).
<b>Materials to avoid</b>	Reactive or incompatible with the following materials: oxidizing materials.
<b>Hazardous decomposition products</b>	Combustion products may include the following: carbon oxides nitrogen oxides phosphorus oxides  Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11 . Toxicological information

<b>Acute toxicity</b>	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. Product not classified for sensitisation. Based on data available for this or related materials.  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.
<b>Chronic toxicity</b>	
<b>Chronic effects</b>	No known significant effects or critical hazards.
<b>Effects and symptoms</b>	
<b>Eyes</b>	No significant health hazards identified.
<b>Skin</b>	No significant health hazards identified.
<b>Inhalation</b>	No significant health hazards identified.
<b>Ingestion</b>	No significant health hazards identified.

## 12 . Ecological information

<b>Persistence/degradability</b>	Inherently biodegradable
<b>Mobility</b>	Spillages may penetrate the soil causing ground water contamination.
<b>Bioaccumulative potential</b>	This product is not expected to bioaccumulate through food chains in the environment.
<b>Environmental hazards</b>	Not classified as dangerous.
<b>Other ecological information</b>	Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

## 13 . Disposal considerations

<b>Disposal considerations / Waste information</b>	The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.
<b>Unused product</b>	
<b>European waste catalogue (EWC)</b>	13 02 06* synthetic engine, gear and lubricating oils However, deviation from the intended use and/or the presence of any potential contaminants may require an alternative waste disposal code to be assigned by the end user.

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## 14 . Transport information

Not classified as hazardous for transport (ADR/RID, ADNR, IMDG, ICAO/IATA)

## 15 . Regulatory information

Classification and labelling have been performed according to EU directives 1999/45/EC and 67/548/EEC as amended and adapted.

### Label requirements

<b>Risk phrases</b>	This product is not classified according to EU legislation.
<b>Additional warning phrases</b>	Contains n-phenyl-1-naphthylamine. May produce an allergic reaction. Safety data sheet available for professional user on request.
<b>Other regulations</b>	
<b>Europe inventory</b>	All components are listed or exempted.
<b>United States inventory (TSCA 8b)</b>	All components are listed or exempted.
<b>Australia inventory (AICS)</b>	At least one component is not listed.
<b>Canada inventory</b>	All components are listed or exempted.
<b>China inventory (IECSC)</b>	All components are listed or exempted.
<b>Japan inventory (ENCS)</b>	At least one component is not listed.
<b>Korea inventory (KECI)</b>	All components are listed or exempted.
<b>Philippines inventory (PICCS)</b>	All components are listed or exempted.
<b>National regulations</b>	National legislation: Occupational Health and Safety Act (Act 85 of 1993).

## 16 . Other information

<b>Full text of R-phrases referred to in sections 2 and 3</b>	R22- Harmful if swallowed. R21/22- Harmful in contact with skin and if swallowed. R43- May cause sensitisation by skin contact. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
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### History

<b>Date of issue/ Date of revision</b>	18/11/2008.
<b>Date of previous issue</b>	No previous validation.
<b>Prepared by</b>	Product Stewardship Group
<b>Notice to reader</b>	

Indicates information that has changed from previously issued version.

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 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.

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