

# Solutia Inc.

## Material Safety Data Sheet

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: SKYDROL® LD4 Fire resistant hydraulic fluid

Reference Number: 00000000183 Date: 05/09/2008

#### Company Information:

##### United States:

Solutia Inc.  
575 Maryville Center Drive, P.O. Box 66760  
St. Louis, MO 63166-6760  
Emergency telephone: Chemtrec: 1-800-424-9300  
International Emergency telephone: Chemtrec: 703-527-3887  
Non-Emergency telephone: 1-314-674-6661

##### Canada:

Solutia Canada Inc.  
6800 St. Patrick Street  
LaSalle, PQ H8N 2H3  
Emergency telephone: CANUTEC: 1-613-996-6666  
Non-Emergency telephone: 1-314-674-6661

##### Mexico:

Solutia MEXICO, S. DE R.L. DE C.V.  
Prol. Paseo de la Reforma 2654  
Local 501, Piso-5  
Col. Lomas Altas  
11950 Mexico, D.F.  
Emergency telephone: SETIQ: (in Mexico) 01-800-002-1400  
Non-Emergency telephone: (in Mexico) 01-55-5259-6800

##### Brazil:

Solutia Brazil Ltd.  
Avenue Carlos Marcondes, 1200  
CEP: 12241-420-São José dos Campos/SP-Brazil  
Emergency telephone: 55 12 3932 7100 (PABX)  
Non-Emergency telephone: 55 11 3146 1800 (PABX)

### 2. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

Form: oily, liquid  
Colour: clear to purple  
Odour: odourless

#### WARNING STATEMENTS

##### WARNING!

Causes eye irritation  
Causes skin irritation  
Causes respiratory tract irritation  
Contains material which may cause urinary bladder damage based on animal data  
Limited evidence of a carcinogenic effect.

### POTENTIAL HEALTH EFFECTS

Likely routes of exposure:	eye and skin contact inhalation
Eye contact:	Highly irritating to eyes.
Skin contact:	Highly irritating to skin. No more than slightly toxic if absorbed. Repeated contact may cause a drying, solvent like action on the skin.
Inhalation:	Severely irritating if inhaled. No more than slightly toxic if inhaled. Significant adverse health effects are not expected to develop under normal conditions of exposure.
Ingestion:	No more than slightly toxic if swallowed. Significant adverse health effects are not expected to develop if only small amounts (less than a mouthful) are swallowed.
Signs and symptoms of overexposure:	coughing sneezing headache nausea/vomiting
Target organs/systems:	Contains material which may cause urinary bladder damage based on animal data

Refer to Section 11 for toxicological information.

### **3. COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Components</u>	<u>CAS No.</u>	<u>Average concentration</u>	<u>Concentration range</u>	<u>Units</u>
tributyl phosphate	126-73-8	58.2		%
dibutyl phenyl phosphate	2528-36-1		20.0 - 30.0	%
butyl diphenyl phosphate	2752-95-6		5.0 - 10.0	%
2-ethylhexyl 7-oxabicyclo[4.1.0] heptane-3-carboxylate	62256-00-2		<=10.0	%
2,6-di-tert-butyl-p-cresol	128-37-0		1.0 - 5.0	%

### **4. FIRST AID MEASURES**

If in eyes:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove any contact lenses. Get medical attention. Remove material from skin and clothing.
If on skin:	Immediately flush the area with plenty of water. Remove contaminated clothing. Wash skin gently with soap as soon as it is available. Get medical attention. Wash clothing before reuse.

If inhaled: Remove patient to fresh air.  
If not breathing, give artificial respiration.  
If breathing is difficult give oxygen.  
Remove material from eyes, skin and clothing.

If swallowed: Immediate first aid is not likely to be required.  
A physician or Poison Control Center can be contacted for advice.  
Wash heavily contaminated clothing before reuse.

Notes to physicians: After flushing eyes for at least 15 minutes, ophthalmic preparations of sterile mineral or castor oil may be instilled one time in the exposed eye for relief of pain.

## 5. FIRE FIGHTING MEASURES

Fire point: 176 C ASTM D-2155

Hazardous products of combustion: None known;

Extinguishing media: Water spray, foam, dry chemical, or carbon dioxide

Unusual fire and explosion hazards: None known

Fire fighting equipment: Firefighters, and others exposed, wear self-contained breathing apparatus.  
Equipment should be thoroughly decontaminated after use.

## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protection recommended in section 8.

Environmental precautions: Keep out of drains and water courses.

Methods for cleaning up: Contain large spills with dikes and transfer the material to appropriate containers for reclamation or disposal. Absorb remaining material or small spills with an inert material and then place in a chemical waste container. Flush spill area with water.

Refer to Section 13 for disposal information and Sections 14 and 15 for reportable quantity information.

## 7. HANDLING AND STORAGE

### Handling

Avoid breathing vapour or mist.  
Avoid contact with eyes, skin and clothing.  
Use with adequate ventilation.  
Keep container closed.  
Wash thoroughly after handling.

Emptied containers retain vapour and product residue. Observe all recommended safety precautions until container is cleaned, reconditioned or destroyed. Do not reuse this container.

### Storage

General: Stable under normal conditions of handling and storage.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits: (ml/m<sup>3</sup> = ppm)

SKYDROL® LD4 No specific occupational exposure limit has been established.

tributyl phosphate ACGIH TLV: 0.2 ml/m<sup>3</sup> ; 2.2 mg/m<sup>3</sup> ; ; 8-hr TWA  
OSHA PEL: 5 mg/m<sup>3</sup> ; ; 8-hr TWA  
Mexican OEL: 0.2 ml/m<sup>3</sup> ; 2.5 mg/m<sup>3</sup> ; ; 8-hr TWA  
Mexican OEL: 0.4 ml/m<sup>3</sup> ; 5 mg/m<sup>3</sup> ; ; 15-min STEL

dibutyl phenyl phosphate ACGIH TLV: 0.3 ml/m<sup>3</sup> ; 3.5 mg/m<sup>3</sup> ; skin \* ; 8-hr TWA  
\* skin absorption of this material may add to the overall exposure.

2,6-di-tert-butyl-p-cresol ACGIH TLV: 2 mg/m<sup>3</sup> ; ; 8-hr TWA  
OSHA PEL: 5 mg/m<sup>3</sup> ; ; 8-hr TWA  
Mexican OEL: 10 mg/m<sup>3</sup> ; ; 8-hr TWA  
Mexican OEL: 20 mg/m<sup>3</sup> ; ; 15-min STEL

Eye protection: Wear chemical goggles.  
Have eye flushing equipment available.

Hand protection: Wear chemical resistant gloves.  
Consult the glove/clothing manufacturer to determine the appropriate type  
glove/clothing for a given application.

Body protection: Wear suitable protective clothing.  
Wear full protective clothing if exposed to splashes.  
Consult the glove/clothing manufacturer to determine the appropriate type  
glove/clothing for a given application.  
Wash contaminated skin promptly.  
Launder contaminated clothing and clean protective equipment before reuse.  
Have safety shower available at locations where skin contact can occur.  
Wash thoroughly after handling.

Respiratory protection: Avoid breathing vapour or mist.  
Use approved respiratory protection equipment (full facepiece recommended) when  
airborne exposure limits are exceeded.  
If used, full facepiece replaces the need for face shield and/or chemical goggles.  
Consult the respirator manufacturer to determine the appropriate type of equipment for  
a given application.  
Observe respirator use limitations specified by the manufacturer.

Ventilation: Provide natural or mechanical ventilation to control exposure levels below airborne  
exposure limits.  
If practical, use local mechanical exhaust ventilation at sources of air contamination  
such as processing equipment.

Components referred to herein may be regulated by specific Canadian provincial legislation. Please refer to exposure  
limits legislated for the province in which the substance will be used.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Flash point:	160 C	Cleveland Open Cup
Autoignition temperature:	398 C	ASTM D-2155
Specific gravity:	1.004 - 1.014 @ 25 C	
Kinematic viscosity:	10.8 - 11.6 cSt @ 38 C	

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

## 10. STABILITY AND REACTIVITY

Conditions to avoid:	Elevated temperatures
Materials to avoid:	Contact with strong oxidizing agents.
Hazardous reactions:	Hazardous polymerization does not occur.
Hazardous decomposition products:	phosphorus oxides (P <sub>x</sub> O <sub>y</sub> ); carbon monoxide (CO); carbon dioxide

## 11. TOXICOLOGICAL INFORMATION

This product has been tested for toxicity. Results from Solutia sponsored studies or from the available public literature are described below.

### Acute animal toxicity data

Oral:	LD50 , rat, 2,100 mg/kg , Slightly toxic following oral administration.
Dermal:	LD50 , rabbit, > 3,160 mg/kg , Practically nontoxic after skin application in animal studies.
Inhalation:	LC50 , rat, > 5.8 mg/l , , No mortality or signs of toxicity at the highest level achievable.
Eye irritation:	rabbit , Slightly irritating to eyes (rabbit)., 24 h
Skin irritation:	rabbit , Moderately irritating to skin., 24 h
Skin sensitization:	Human experience , Predictive patch testing on human volunteers did not produce dermal sensitization.
Repeat dose toxicity:	rat , , inhalation, 28 days , , Repeated exposure produced eye irritation in animal models. Repeated exposure produced respiratory tract irritation in animal models. Produced effects on body weight, serum enzymes and/or organ weights in repeat dose studies.

Neurotoxicity: chicken, gavage, acute, Brain cholinesterase inhibition.

Mutagenicity: No genetic effects were observed in standard tests using bacterial and animal cells.

### Components

Data from Solutia studies and/or the available scientific literature on the components of this material which have been identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200) or the Canadian Hazardous Products Act are discussed below if present.

tributyl phosphate	<p>Harmful if swallowed. Practically nontoxic after skin application in animal studies. Slightly irritating to eyes (rabbit). Highly irritating to skin (rabbit). Produced no dermal sensitization (guinea pigs). Repeated oral administration produced multiple systemic effects. No delayed neurotoxicity was observed in animal models. This material produced tumours in laboratory animals at dose levels that exceed the maximum tolerated dose. The weight of the evidence indicates that this material is not mutagenic in in-vitro assays.</p>
dibutyl phenyl phosphate	<p>Slightly toxic following oral administration. Practically nontoxic after skin application in animal studies. Practically non irritating to eyes (rabbit). Practically non irritating to skin (rabbit). Produced no dermal sensitization (guinea pigs). Repeated skin exposure produced irritation in animal studies. Produced effects on body weight, serum enzymes and/or organ weights in repeat dose studies. Repeated oral administration produced multiple organ effects. No delayed neurotoxicity was observed in animal models. No birth defects were noted in rats given the active ingredient orally during pregnancy. This material had no effect on reproduction or fertility. Produced developmental toxicity. The weight of the evidence indicates that this material is not mutagenic in in-vitro assays.</p>
2,6-di-tert-butyl-p-cresol	<p>Slightly irritating to skin, eyes and respiratory system in animal models. Produced effects on body weight, serum enzymes and/or organ weights in repeat dose studies. Both positive and negative responses observed in standard tests for genetic changes.</p>
2-ethylhexyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate	<p>Slightly toxic following oral administration. Practically nontoxic after skin application in animal studies. Practically non irritating to eyes (rabbit). Slightly irritating to skin (rabbit). No mortality or signs of toxicity at the highest level tested. Produced dermal sensitization (guinea pigs). The weight of the evidence indicates that this material is not mutagenic in in-vitro assays. The weight of the evidence indicates that this material is mutagenic in in vivo assays.</p>

## 12. ECOLOGICAL INFORMATION

### Environmental Toxicity

Invertebrates	48 h, EC50	Water flea ( <i>Daphnia magna</i> )	5.8 mg/l
Fish:	96 h, EC50	Rainbow trout ( <i>Oncorhynchus mykiss</i> )	5.2 mg/l
	96 h, EC50	Fathead minnow ( <i>Pimephales promelas</i> )	4.8 mg/l
Algae:	96 h, EC50	Algae ( <i>Selenastrum capricornutum</i> )	10 mg/l

### Environmental fate

Biodegradation	Readily biodegradable.
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## 13. DISPOSAL CONSIDERATIONS

US EPA RCRA Status: This material when discarded is not a hazardous waste as that term is defined by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261.

Disposal considerations: Incineration  
Recycle

Miscellaneous advice: This product meets the criteria for a synthetic used oil under the U.S. EPA Standards for the Management of Used Oil (40 CFR 279). Those standards govern recycling and disposal in lieu of 40 CFR 260 -272 of the Federal hazardous waste program in states that have adopted these used oil regulations. Consult your attorney or appropriate regulatory official to be sure these standards have been adopted in your state. Recycle or burn in accordance with the applicable standards.  
Local, state, provincial, and national disposal regulations may be more or less stringent. This product should not be dumped, spilled, rinsed or washed into sewers or public waterways.

## 14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

### US DOT

Other: Not regulated for transport.

### Canadian TDG

Other: Not regulated for transport.

### ICAO/IATA Class

Other: Not regulated for transport.

## 15. REGULATORY INFORMATION

All components are in compliance with the following inventories: U.S. TSCA, EU EINECS, Canadian DSL, Australian AICS, Korean, Japanese ENCS, Chinese

Canadian WHMIS classification: D2(B) - Materials Causing Other Toxic Effects

SARA Hazard Notification:

Hazard Categories Under Title III Rules (40 CFR 370):	Immediate Delayed
Section 302 Extremely Hazardous Substances:	Not applicable
Section 313 Toxic Chemical(s):	Not applicable

CERCLA Reportable Quantity:

Not applicable

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

Refer to Section 11 for OSHA/HPA Hazardous Chemical(s) and Section 13 for RCRA classification.

Safety data sheet also created in accordance with Brazilian law NBR 14725

## 16. OTHER INFORMATION

Product use: Hydraulic fluids and additives

Reason for revision: Routine review and update

	Health	Fire	Reactivity	Additional Information
Suggested NFPA Rating	2	1	0	
Suggested HMIS Rating:	2	1	0	G

Prepared by the Solutia Hazard Communication Group. Please consult Solutia @ 314-674-6661 if further information is needed.

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