



# Product End-of-Life Disassembly Instructions

Product Category: Workstations

## Marketing Name / Model

HP Z420 Workstation

**Purpose:** The document is intended for use by end-of-life recyclers or treatment facilities. It provides the basic instructions for the disassembly of HP products to remove components and materials requiring selective treatment, as defined by EU directive 2002/96/EC, Waste Electrical and Electronic Equipment (WEEE).

## 1.0 Items Requiring Selective Treatment

1.1 Items listed below are classified as requiring selective treatment.

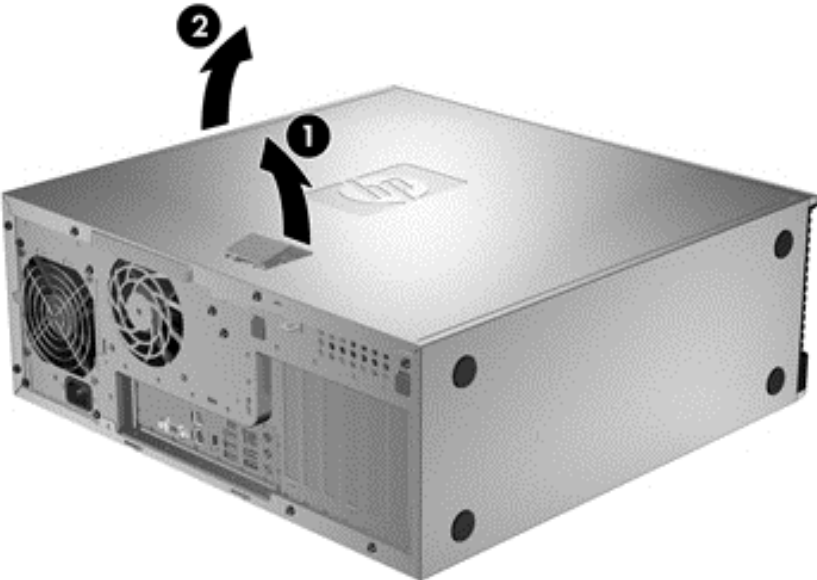
Item Description	Notes	Quantity of items included in product
Printed Circuit Boards (PCB) or Printed Circuit Assemblies (PCA)	With a surface greater than 10 sq cm Two in the power supply, one graphics card, and one system board. (Additional cards may be present depending on the configuration.)	4
Batteries	All types including standard alkaline and lithium coin or button style batteries	1
Mercury-containing components	For example, mercury in lamps, display backlights, scanner lamps, switches, batteries	None
Liquid Crystal Displays (LCD) with a surface greater than 100 sq cm	Includes background illuminated displays with gas discharge lamps	None
Cathode Ray Tubes (CRT)		None
Capacitors / condensers (Containing PCB/PCT)		None
Electrolytic Capacitors / Condensers measuring greater than 2.5 cm in diameter or height	Five attached to the power supply board.	5
External electrical cables and cords		1
Gas Discharge Lamps		None
Plastics containing Brominated Flame Retardants		None
Components and parts containing toner and ink, including liquids, semi-liquids (gel/paste) and toner	Include the cartridges, print heads, tubes, vent chambers, and service stations.	None
Components and waste containing asbestos		None
Components, parts and materials containing refractory ceramic fibers		None
Components, parts and materials containing radioactive substances		None

## 2.0 Tools Required

Tool Description	Tool Size (if applicable)
Assorted Torx drivers, screwdrivers and a diagonal cutter	
<b>3.0 Product Disassembly Process</b>	

(See instructions below in sections 3.2, 3.3, and 3.4.)

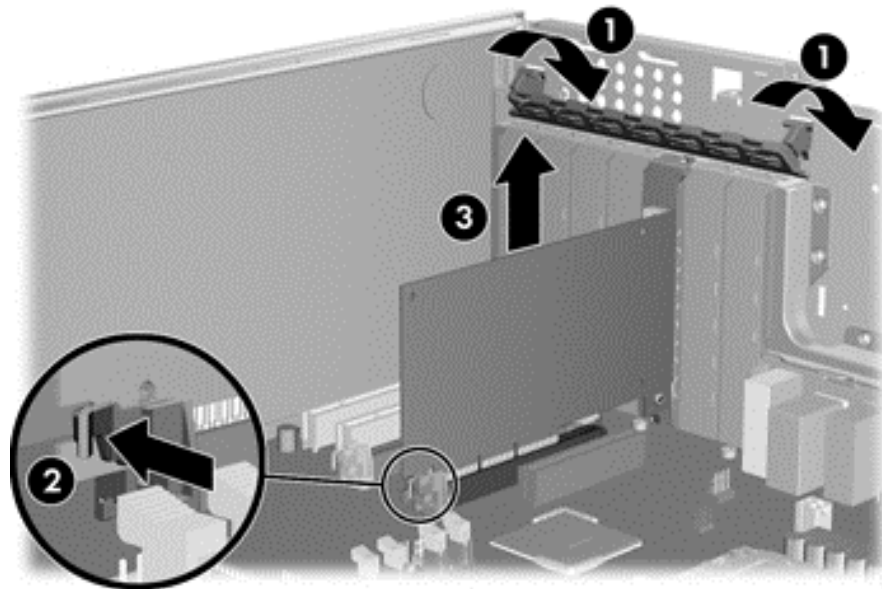
### 3.2 Workstation Disassembly Procedures

1.	Power off the workstation.
2.	Remove/disengage any security devices that prohibit opening the workstation.
3.	Disconnect the power cord from the electrical outlet and then from the workstation.
4.	Disconnect all peripheral device cables from the workstation.
5.	<p>Remove the side access panel.</p> 
6.	Disconnect all internal cables from system board, power supply, and other components.

7. Remove the system battery. Use a slot screwdriver to leverage battery out of the battery holder. Rotate the battery beyond the battery holder edges and lift it out.



8. Remove the graphics card and any other expansion cards. Open the PCI card retainer (1), release the PCI slot latch (2) (if necessary), and lift the card from the chassis (3).

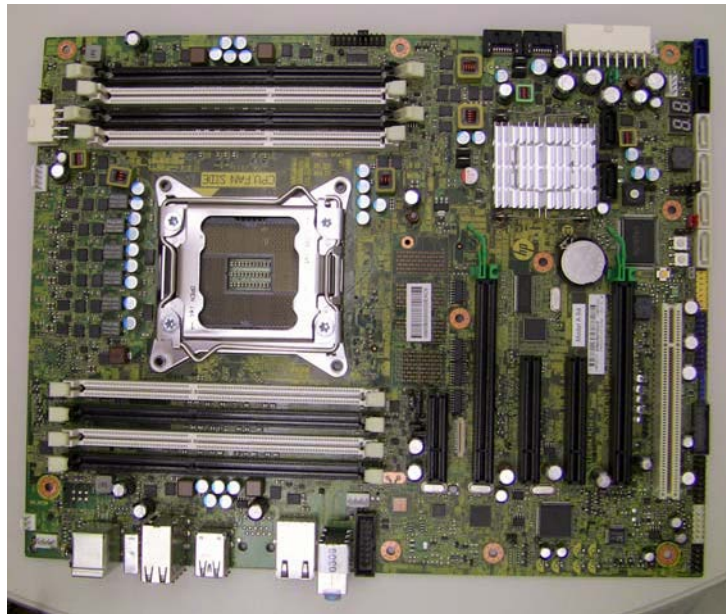


9. Remove the power supply from the chassis. Disconnect or cut electrical connections to the power supply. Remove the screws securing the power supply to the workstation chassis. Slide the power supply toward the front of the chassis, then lift up to remove.



10. Remove all components from the workstation.

11. To remove the system board, complete the following steps:
- Remove all ten screws.
  - Slide the system board toward the front of the chassis, and then lift it out of the chassis.

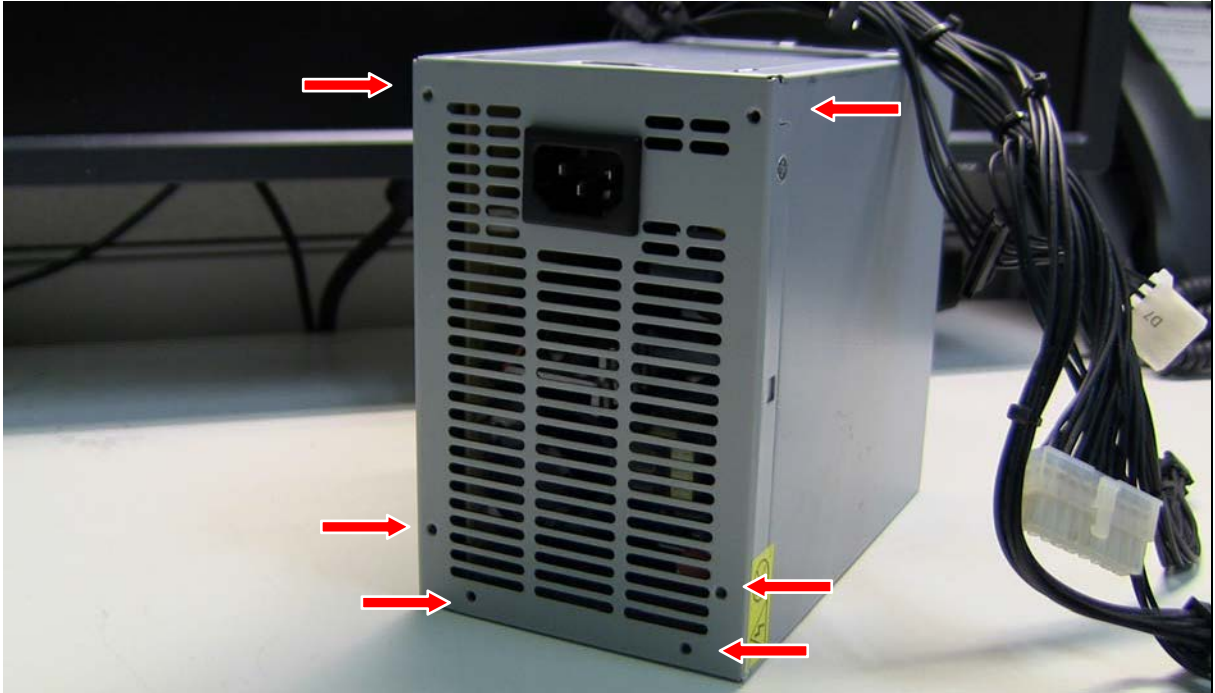


12. Dispose of all removed components according to regulatory requirements.

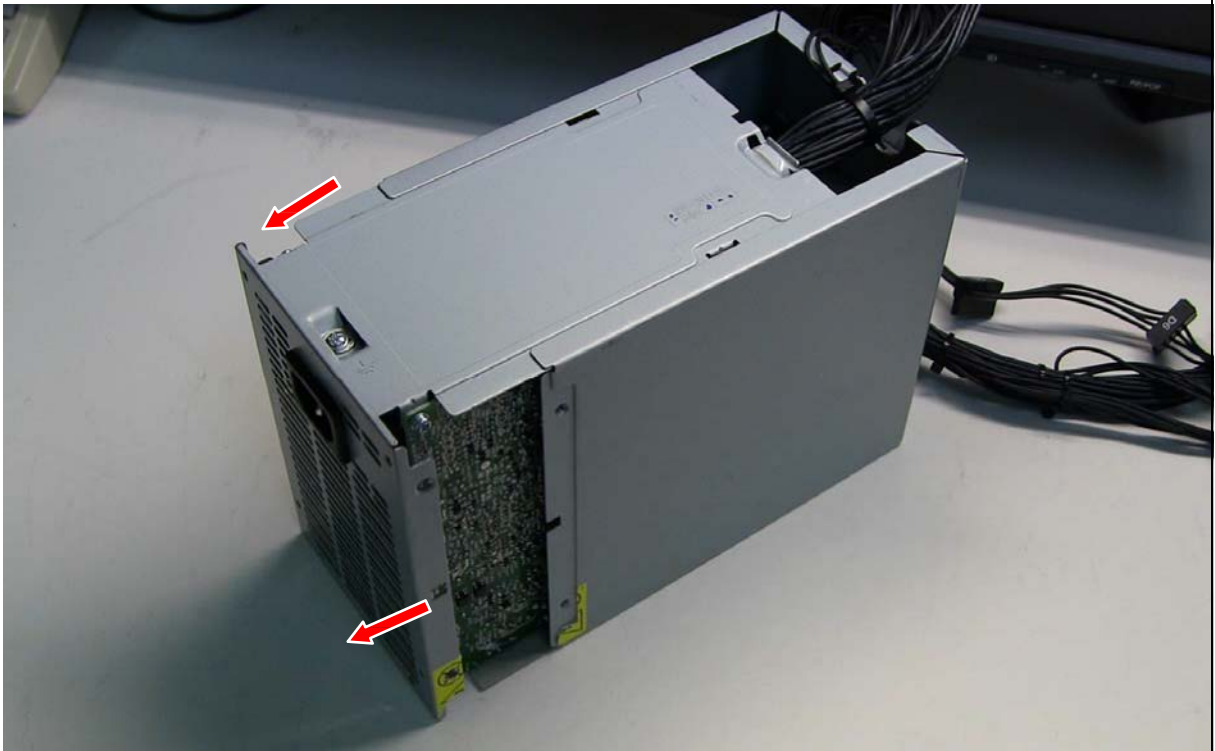
### 3.3 Power Supply Disassembly Procedures

Refer to the Items Requiring Selective Treatment table to identify all components to be removed.

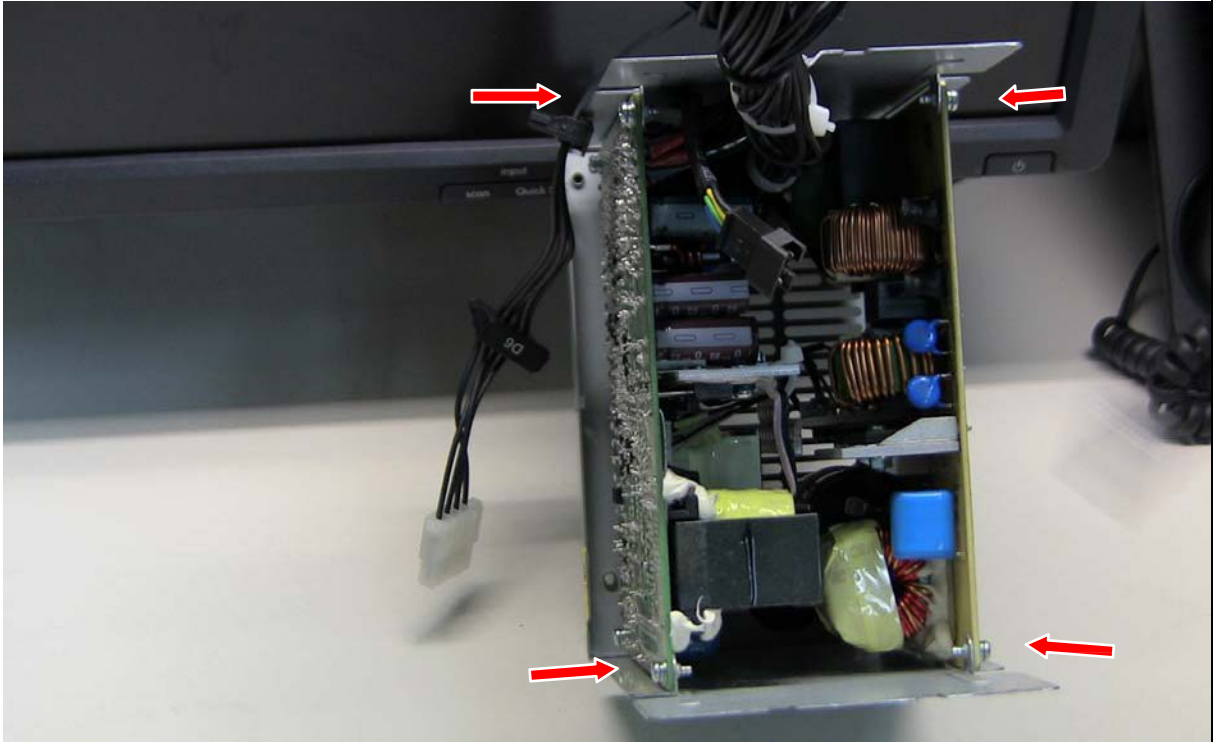
1. Remove all screws from the power supply chassis.



3. Slide the chassis housing from the power supply unit.



4. Remove all screws from the corners of the power unit. The unit opens into two parts.





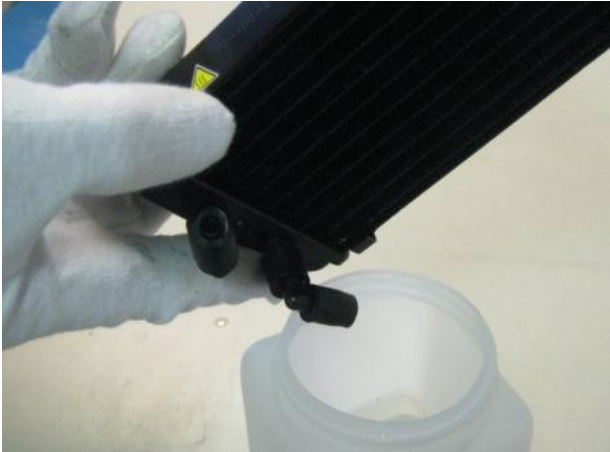

5. Ensure that all capacitors are safely discharged. Use a diagonal cutter to remove the desired components from the PCA. (Note that some components may need to be unsoldered if a diagonal cutter does not fit between the component and the PCA.)



6. Dispose of all removed components according to regulatory requirements.

### 3.4 Liquid Cooling Solution (LCS) Removal Procedures\* (\*Depending on Configuration)

1.	<p>Remove the LCS from the workstation.</p> <ol style="list-style-type: none"><li>Unplug the LCS connector cable from the system board.</li><li>Remove the four heatsink mounting screws from the LCS cold plate assembly, as shown in the following figure. Lift the assembly from the CPU.</li></ol>
2.	
3.	<p>Drain the coolant from the closed loop system. This is done by cutting the tubes, as shown in the following two pictures.</p> 

4.	<p>Empty the radiator of fluid.</p>  A close-up photograph showing a person's hand wearing a white nitrile glove. The hand is holding a black, ribbed radiator component. A small black hose or tube is attached to the bottom of the radiator, and it is being held over a white plastic container. A small amount of clear liquid is visible inside the container, indicating that fluid is being drained from the radiator.
5.	<p>Empty the pump body of fluid.</p>  A close-up photograph showing a person's hand wearing a white nitrile glove. The hand is holding a black, cylindrical pump body component. A small black hose or tube is attached to the bottom of the pump body, and it is being held over a white plastic container. A small amount of clear liquid is visible inside the container, indicating that fluid is being drained from the pump body.
6.	<p>Dispose of all removed components and fluid (propylene glycol) according to regulatory requirements.</p> <p>See the <i>Appendix Material Safety Data Sheet (MSDS)</i> for the MSDS for the fluid.</p>



## Appendix – Material Safety Data Sheet (MSDS)

This Appendix contains the Material Safety Data Sheet (MSDS) for the liquid cooling solution fluid.

# SAFETY DATA SHEET

20/7/09

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## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

DOW CHEMICAL COMPANY LTD 2 HEATHROW BOULEVARD  
284 BATH ROAD  
WEST DRAYTON  
MIDDLESEX  
UB7 0DQ

24 HOUR EMERGENCY RESPONSE NUMBER : +44-1553-761-251

For product information: +44-0208-917-5000

Product Name: DOWCAL\* 20 Heat Transfer Fluid  
LV70: 22265 Issue Date: Nov. 94 Ref: 00521  
Revised: Oct. 04 (Section(s) 2 & 9)

### Use of the substance/preparation

For industrial use only.

\* Trademark of The Dow Chemical Company.

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## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Inhibited glycol formulation  
CAS EC No  
Propylene glycol 30-94 % 000057-55-6 200-338-0

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## 3. HAZARDS IDENTIFICATION

This product is not classified as dangerous according to EC criteria.

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## 4. FIRST-AID MEASURES

Never give fluids or induce vomiting if patient is unconscious or is having convulsions.

### Inhalation

No emergency medical treatment necessary.

### Skin Contact

Wash skin with plenty of water.

**Eye Contact**

Flush eyes thoroughly with water for several minutes. Remove contact lenses after initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**Ingestion**

No emergency medical treatment necessary.

**Note to Physician**

No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

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**5. FIRE-FIGHTING MEASURES****Extinguishing Media**

Water fog or fine spray. Carbon dioxide. Foam. Dry chemical fire extinguishers.

**Hazardous Combustion Products**

Combustion products may include and are not limited to: Carbon monoxide. Propionaldehyde.

**Protection of Firefighters**

Wear positive-pressure self-contained breathing apparatus and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves).

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**6. ACCIDENTAL RELEASE MEASURES**

Large spills: Contain with dike. Pump into suitable and properly labelled containers. Recover if possible, or dispose of according to applicable regulations, see Section 13, DISPOSAL CONSIDERATIONS.

Small spills: Cover and soak up with a suitable absorbent material. Collect in suitable and properly labelled containers. Dispose of according to applicable regulations, see Section 13, DISPOSAL CONSIDERATIONS.

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**7. HANDLING AND STORAGE****Handling**

Practice care and caution to avoid skin and eye contact.

When performing maintenance activities, proper care should be taken to prevent spilled fluid from entering the environment. Any spilled fluid should be absorbed and disposed of in accordance with all regulations.

## Storage

Store containers tightly closed in a well ventilated area. Do not store in open sunshine.

Avoid exposure to UV-light as this can adversely affect quality.

Ground and bond all equipment.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines

Propylene glycol: The UK Health and Safety Executive has established an Occupational Exposure Standard(OES) for total, vapour and particulate, of 150ppm 8-hour TWA and for particulate only of 10mg/m<sup>3</sup> 8-hour TWA.

### Engineering Controls

Good general ventilation should be sufficient.

### Personal Protective Equipment

#### - Respiratory Protection

When airborne exposure guidelines and/or comfort levels may be exceeded, use an approved air-purifying respirator.

Use a CE approved air-purifying respirator with cartridge/filter for:

Organic vapours and particles, type AP2.

#### - Skin Protection

Gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

#### - Eye/Face Protection

Use safety glasses. Where contact with this material is likely, chemical goggles are recommended because eye contact may cause discomfort even though it is unlikely to cause injury.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : colourless or coloured at request

Odour : none

Density : 1.028-1.055 g/cm<sup>3</sup> (20 deg.C)

Freezing point/range : -12--51 deg.C

Boiling point/range : 102-166 deg.C

Vapour pressure : <10 mbar

pH : 7-8.2

Water solubility : miscible in all proportions

LogP (octanol/water) : -0.92 (propylene glycol)

Flash point : 103 deg.C (propylene glycol)

Auto-ignition temp. : 371 deg.C (propylene glycol)

Flammability-LFL : 2.6 %vol/vol (propylene glycol)

Flammability-UFL : 12.5 %vol/vol (propylene glycol)

Viscosity : 2.81-78 mPa.s (20 deg.C)

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## 10. STABILITY AND REACTIVITY

### Chemical Stability

Stable under normal handling and storage conditions, see Section 7, Handling and Storage.

### Materials to Avoid

Oxidising agents.

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## 11. TOXICOLOGICAL INFORMATION

Data for: Propylene glycol:

### Acute toxicity

#### - Ingestion

Low toxicity if swallowed. The oral LD50 for rats is 21000-34000 mg/kg. Harmful effects not anticipated from swallowing small amounts.

#### - Skin

Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD50 for skin absorption in rabbits is >10000 mg/kg. Repeated contact may cause flaking and softening of skin.

#### - Inhalation

Prolonged exposure is not expected to cause adverse effects. Mists are not likely to be hazardous.

### Irritation

#### - Skin

Prolonged contact is essentially nonirritating to skin. Repeated contact may cause flaking and softening of skin.

#### - Eye/Face Protection

May cause slight temporary eye irritation. Corneal injury is unlikely.

### Developmental/Reproductive Effects

In animal studies, did not interfere with reproduction.

### Mutagenicity

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

### Carcinogenicity

Did not cause cancer in laboratory animals.

### Other Information

Repeated excessive ingestion may cause central nervous system effects.

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## 12. ECOLOGICAL INFORMATION

Data for: Propylene glycol:

### Mobility and Bioaccumulation Potential

Measured log octanol/water partition coefficient (log Pow) is -0.92. No bioconcentration is expected because of the high water solubility.

Potential for mobility in soil is very high (Koc between 0 and 50).  
No appreciable volatilization from water to air is expected.

#### **Degradation**

Biodegradation reached in Closed Bottle Test after 20 days: 86 %.  
Material is readily biodegradable. Passes OECD Test(s) for ready biodegradability.

Biodegradation may occur slowly under both aerobic and anaerobic conditions (in either presence or absence of oxygen).

Inhibitory concentration (IC50) in OECD Activated Sludge, Respiration

Inhibition Test (OECD Test No. 209) is >1000 mg/L.

Material is not expected to cause long-term adverse effects in the aquatic environment (material is readily biodegradable and log Pow is less than 3.0).

#### **Aquatic Toxicity**

Acute LC50 for fathead minnow (*Pimephales promelas*) is 4660-54600 mg/L.  
Acute LC50 for water flea *Daphnia magna* is 4850-34400 mg/L. This material is classified as not dangerous to aquatic organisms, as the median effect concentrations (LC50, EC50 or IC50) are greater than 100 mg/L for the most sensitive species.

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### **13. DISPOSAL CONSIDERATIONS**

Incinerate under controlled conditions in accordance with all local and national laws and regulations.  
Empty containers can only be disposed of when the remaining product adhering to the container walls has been removed. Remove all labels.

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### **14. TRANSPORT INFORMATION**

Product is not classified for any mode of transportation.

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### **15. REGULATORY INFORMATION**

#### **EC Classification and User Label Information**

This product does not require classification according to the criteria of the Commission of the European Communities.

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### **16. OTHER INFORMATION**

No other information.

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The information herein is given in good faith and to the best of our knowledge but no warranty, express or implied, is made.