

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

Identification of the substance/preparation

Product name : PDEV
Use of the Substance/Preparation : Photographic developer concentrate

Company/Undertaking Identification

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2. COMPOSITION/INFORMATION ON INGREDIENTS

The hazard and labelling information in this section is that of the individual ingredients. The corresponding information relative to this product as supplied is given in section 15. Full text of each relevant R-phrase is listed in section 16.

Aqueous photographic developer concentrate, mainly consisting of:

Hazardous components

- Potassium carbonate Concentration [%] : 10,0 - 20,0
CAS-No. : 584-08-7
EINECS-No. : 209-529-3
Symbol(s) : Xi
R-phrase(s) : R36/38
- Hydroquinone Concentration [%] : 1,0 - 5,0
CAS-No. : 123-31-9
Index-No. : 604-005-00-4
EINECS-No. : 204-617-8
Symbol(s) : Xn, N
R-phrase(s) : R22, R40, R41, R43, R50, R68
- Diethylene glycol Concentration [%] : 1,0 - 5,0
CAS-No. : 111-46-6
Index-No. : 603-140-00-6
EINECS-No. : 203-872-2
Symbol(s) : Xn
R-phrase(s) : R22
- EDTA-sodium salt Concentration [%] : 0,5 - 1,0
CAS-No. : 64-02-8
EINECS-No. : 200-573-9
Symbol(s) : Xn
R-phrase(s) : R22, R36, R52/53

Other

- Water Concentration [%] : 60,0 - 80,0
- Sodium sulphite Concentration [%] : 10,0 - 20,0
- Potassium bromide Concentration [%] : 0,5 - 1,0

- Isoascorbic acid sodium salt Concentration [%] : 0,5 - 1,0

3. HAZARDS IDENTIFICATION

EC-classification:

Symbol(s)	: Xn	Harmful
R-phrase(s)	: R36	Irritating to eyes.
	: R40	Limited evidence of a carcinogenic effect.
	: R43	May cause sensitization by skin contact.
	: R68	Possible risk of irreversible effects.

4. FIRST AID MEASURES

Eye contact	: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Skin contact	: Wash immediately with plenty of water and soap. If symptoms persist, seek medical advice.
Ingestion	: Rinse mouth with plenty of water. Seek medical advice.
Inhalation	: Take person to fresh air. If necessary, seek medical advice.

5. FIRE-FIGHTING MEASURES

Further information	: Product is not combustible.
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6. ACCIDENTAL RELEASE MEASURES

Personal precautions	: See section 8.
Environmental precautions	: For waste disposal see section 13.
Methods for cleaning up	: Dike the spill if necessary. Soak up with absorbent material. Collect large spills into a properly labelled and sealable container. Prevent release into the drain, soil or surface water.
Additional advice	: Wash away residues with plenty of water.

7. HANDLING AND STORAGE

Handling

Advice on protection against fire and explosion	: No special protective measures against fire and explosion required.
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Storage

Requirements for storage areas and containers	: Keep container tightly closed. Protect from direct sunlight.
Advice on common storage	: Store away from strong acids and strong oxidizing agents (e.g. sodium hypochlorite).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limit Values

SAFETY DATA SHEET

according to EC directive 2001/58/EC



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Components	CAS-No.	Values	Type	Revision Date	Basis
Hydroquinone	123-31-9	2 mg/m3	MAK	07 2001	MAK (AT)
		4 mg/m3	MAK	07 2001	MAK (AT)
			CEIL		

Exposure controls

- Engineering measures : Ventilation should be sufficient so that any applicable occupational exposure limits are not exceeded.
- Hygiene measures : Observe normal precautions when handling chemicals. Avoid inhaling vapour. Keep away from foodstuffs, drinks and tobacco.
- Hand protection : Use chemical resistant gloves. In case of prolonged immersion or frequently repeated contact use gloves made of the materials: butyl rubber (thickness \geq 0.36 mm, breakthrough time $>$ 480 min), nitrile rubber (thickness \geq 0.38 mm, breakthrough time $>$ 480 min) or neoprene (thickness \geq 0.65 mm, breakthrough time $>$ 240 min). For intermittent splash protection corresponding gloves with breakthrough times $>$ 60 min can be used. Avoid gloves made of: natural latex.
- Eye protection : Safety glasses.

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information

- Form : Liquid
- Colour : Yellowish
- Odour : Nearly odourless

Important Health Safety and Environmental Information

- Vapour pressure (20 °C) : 23,00 hPa
- Relative density (20 °C) : 1,270
- Solubility/qualitative : Miscible with water at all ratios.
- pH (25 °C) : 10,8
- Melting point/range : $<$ 0 °C
- Boiling point/range : $>$ 100 °C
- Relative vapour density : Not applicable
- Ignition temperature : Not applicable
- Lower explosion limit : Not applicable
- Upper explosion limit : Not applicable

10. STABILITY AND REACTIVITY

- Stability : The product is stable under normal conditions of storage and use.
- Conditions and materials to avoid : Avoid contact with strong acids and strong oxidizing agents (e.g. sodiumhypochlorite). Remove all chemicals and rinse the processing tanks thoroughly with water before using any cleansing products.
- Hazardous decomposition products : None

11. TOXICOLOGICAL INFORMATION

R-phrases(s)	:	R36	Irritating to eyes.
		R40	Limited evidence of a carcinogenic effect.
		R43	May cause sensitization by skin contact.
		R68	Possible risk of irreversible effects.

Acute oral toxicity

• Potassium carbonate	:	LD50 rat	> 2.000 mg/kg
• Hydroquinone	:	LD50 rat	320 mg/kg
• Diethylene glycol	:	LD50 rat	12.565 mg/kg
• EDTA-sodium salt	:	LD50 rat	> 1.000 mg/kg

Acute dermal toxicity

• Hydroquinone	:	LD50 cat	5.970 mg/kg
• Diethylene glycol	:	LD50 rabbit	11.890 mg/kg
• EDTA-sodium salt	:	LD50 rabbit	> 2.000 mg/kg

Other information

There is insufficient scientific evidence for classifying hydroquinone as a suspected carcino- or mutagenic substance in humans. Epidemiologic studies over a period of 48 years, wherein -during manufacturing and use of hydroquinone- more than 800 human individuals were daily exposed at significant airborne concentrations (greater than the occupational threshold of 2 mg/m³), demonstrated that such exposure is not associated with the induction of cancer in humans. Hazard labelling of this preparation: see section 15.

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Biodegradation

- Hydroquinone : OECD 301D Assessment of biological degradability
> 80 % after 28 d

Ecotoxicity effects

Pending the development of criteria for evaluating impact of a chemical preparation, ecological information referring to the most important individual ingredients present in this preparation is given here merely as an indication. The effective environmental impact of this preparation should of course be assessed taking into account the actual concentration of each individual ingredient in this preparation.

Toxicity to fish

- Potassium carbonate : Species: Pimephales promelas (fathead minnow)
LC50: > 100 mg/l/ 96 h
- Hydroquinone : Species: Brachidanio rerio (zebra fish)
LC50: 0,1 mg/l/ 96 h
- Diethylene glycol : Species: Lepomis macrochirus (bluegill sunfish)
LC50: > 1.000 mg/l/ 96 h
- EDTA-sodium salt : Species: Leuciscus idus (golden orfe)
LC50: > 500 mg/l/ 96 h

Toxicity to daphnia

- Potassium carbonate : Species: Daphnia magna (water flea)
EC50: 100 mg/l/ 48 h

- Hydroquinone : Species: Daphnia magna (water flea)
EC50: 0,3 mg/l/ 48 h
- Diethylene glycol : Species: Daphnia magna (water flea)
EC50: > 1.000 mg/l/ 24 h
- EDTA-sodium salt : Species: Daphnia magna (water flea)
EC50: > 100 mg/l/ 48 h

Toxicity to algae

- Hydroquinone : Species: Selenastrum capricornutum (algae)
EC50: 0,3 mg/l/ 72 h
- Diethylene glycol : Species: Scenedesmus quadricauda (algae)
EC0: 2.700 mg/l/ 7 d

Toxicity to bacteria

- Diethylene glycol : Species: Pseudomonas putida (bacteria)
EC10: 8.000 mg/l/ 72 h

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Environmental regulations, discharge of chemicals and washwater, waste treatment and disposal conditions of chemicals and their packaging may vary from one country to another. The relevant local regulations should be consulted. When this product or its contaminated packaging has to be removed as waste, contact an authorized waste contractor. May be discharged to drain if local regulations permit.

For waste resulting from this product, it is recommended to use European Waste Code : 09 01 01 (water-based developer and activator solutions).

14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

15. REGULATORY INFORMATION

Labelling according to EC Directives

Hazardous components which must be listed on the label :

- CAS-No. : 123-31-9 Hydroquinone

- Symbol(s) : Xn Harmful
- R-phrase(s) : R36 Irritating to eyes.
R40 Limited evidence of a carcinogenic effect.
R43 May cause sensitization by skin contact.
R68 Possible risk of irreversible effects.
- S-phrase(s) : S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

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16. OTHER INFORMATION

Further information

Text of R-phrases referred to under headings 2 and 3:

R22	Harmful if swallowed.
R36	Irritating to eyes.
R36/38	Irritating to eyes and skin.
R40	Limited evidence of a carcinogenic effect.
R41	Risk of serious damage to eyes.
R43	May cause sensitization by skin contact.
R50	Very toxic to aquatic organisms.
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R68	Possible risk of irreversible effects.

This Safety Data Sheet is compiled in accordance with European Directives and corresponding national legislation.

The information disclosed in this Safety Data Sheet is believed to be correct to the best of our current knowledge and experience. It only relates to the specific product designated herein and it may not be valid when said product is used in combination with any other material or in any process, unless specified in the text. This document aims to provide the necessary health and safety information of the product and is not to be considered a warranty or quality specification. It is the responsibility of the user to comply with local legislation relating to safety, health, environment and waste management.