

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

- Identification of the product:

Trade name: ADOX Silvermax Developer

- Use of the substance/preparation: photographic developing agent, particularly for pictorial development of black and white films.

- Manufacturer/distributor identification

Manufacturer: ADOX Fotowerke GmbH
Pieskower Straße 30a
15526 Bad Saarow
Phone: + 49(0)33631-6459-0
Fax: + 49(0)33631-6459-190
Email: info@adox.de

- Further information phone: + 49(0)33631-6459-0

- Competent person, responsible for Safety Data Sheet (email):
info@adox.de (management)

- Emergency telephone (Germany): 0049 (0)30-19240 (Berlin poison control centre for symptoms of intoxication and embryonal toxicology); 0049(0) 6131-19240 (advice centre for poisoning Mainz)

2. Hazards identification

- Classification of the substance or mixture
- Classification according to regulation (EC) No. 1272/2008

Acute Tox. 4 H 302 Harmful if swallowed

Skin Irrit. 2 H 315 Causes skin irritation

Skin sens. 1 H 317 May cause an allergic skin reaction

Eye Irrit. 2 H 319 Causes serious eye irritation

Aquatic Chronic 3 H 412 Harmful to aquatic life with long lasting effects

- Classification according to Directive 67/548/EEC and 1999/45/EC

Xn Harmful; N Dangerous for the environment

R 22 Harmful if swallowed

R 36/38 Irritating to eyes and skin; R 43 May cause sensitization by skin contact;

R 52 Harmful to aquatic organisms

- Labelling elements
- Labelling according to regulation (EC) No. 1272/2008

The mixture is classified and labelled according to the CLP Regulation

- Hazard pictogram



GHS 07

- Signal word: Warning

- Hazard statements

H 302 Harmful if swallowed

H 315 Causes skin irritation

H 317 May cause an allergic skin reaction

H 319 Causes serious eye irritation

H 412 Harmful to aquatic life with long lasting effects

- Precautionary statements

P 273 Avoid release to the environment

P 301 + P 312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P 302 + P 352 IF ON SKIN: Wash with plenty of soap and water

P 305 + P 351 + P 338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P 337 + P 313 If eye irritation persists: Get medical advice/attention

P 501 Dispose of contents/container to hazardous waste

- Other hazards
- Results of the PBT and vPvB assessments
- PBT: not applicable
- vPvB: not applicable

3. Composition/Information on ingredients

- Chemical characterisation: aqueous solution

- Hazardous ingredients:

Potassium carbonate: EINECS: 209-529-3; CAS RN: 584-08-7

Percentage: < 1.5 %

Classification according to Regulation (EC) No. 1272/2008:

Skin Irrit. 2 H 315; Eye Irrit. 2 H 319; STOT SE 3 H 335

Classification according to Directives 67/548/EEC and 1999/45/EC:

Xi Irritant; R 36/37/38

Diethylene glycol: EINECS: 203-872-2; CAS RN: 111-46-6

Percentage: < 2.5 %

Classification according to Regulation (EC) No. 1272/2008:

STOT RE 2 H 373; Acute Tox. 4 H 302

Classification according to Directives 67/548/EEC and 1999/45/EC:

Xn Harmful; R 22

Trilon C: EINECS: 205-391-3; CAS RN: 140-01-2

Percentage: < 1 %

Classification according to Regulation (EC) No. 1272/2008:

Acute Tox. (inhalative) 4 H 332; Repr. Lact. 2 H 361

Classification according to Directives 67/548/EEC and 1999/45/EC:

Xn Harmful; Xi Irritant; R 20-36/38-63

Hydroquinone sulfonic acid (potassium salt): EINECS: 244-584-7; CAS RN: 21799-87-1

Percentage: < 2.5 %

Classification according to Regulation (EC) No. 1272/2008:

Eye Irrit. 2 H 319; Skin Sens. 1 H 317

Classification according to Directives 67/548/EEC and 1999/45/EC:

Xi Irritant; R 36-43

4-Hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidone: EINECS: 235-920-3; CAS RN: 13047-13-7

Percentage: < 0.1 %

Classification according to Regulation (EC) No. 1272/2008:

Acute Tox. 4 H 302; Skin Sens. 1 H 317 ; Aquatic Chronic 2 H 411

Classification according to Directives 67/548/EEC and 1999/45/EC:

Xn Harmful, Xi Irritant, N Dangerous for the environment; R 22-36-43-51/53

1-Phenyl-3-pyrazolidinone: EINECS: 202-155-1, CAS RN: 92-43-3

Percentage: < 0.1 %

Classification according to Regulation (EC) No. 1272/2008:

Acute Tox. 4 H 302; Aquatic Chronic 2 H 411

Classification according to Directives 67/548/EEC and 1999/45/EC:

Xn Harmful, N Dangerous for the environment; R 22-51/53

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Sodium Hydroxide: EINECS 215-185-5; CAS RN: 1310-73-2

Percentage: < 0.5 %

Classification according to Regulation (EC) No. 1272/2008:

Met. Corr. 1 H 290; Skin corr. 1A H 314

Classification according to Directives 67/548/EEC and 1999/45/EC:

C Corrosive; R 35

Potassium Thiocyanate: EINECS: 206-370-1; CAS RN: 333-20-0

Percentage: < 0.5 %

Classification according to Regulation (EC) No. 1272/2008:

Acute Tox. 4 H 302; H 312; H 332; Aquatic Chronic 3 H 412

Classification according to Directives 67/548/EEC and 1999/45/EC:

Xn Harmful; R 20/21/22, R 32, R 52/53

4-Methylaminophenol sulfate: EINECS:200-237-1; CAS RN 55-55-0

Anteil: < 0.1 %

Classification according to Regulation (EC) No. 1272/2008:

STOT RE 2 H 373; Aquatic Acute 1 H 400; Aquatic Chronic 1 H 410; Acute Tox. 4 H 302; Skin Sens.1 H 317

Classification according to Directives 67/548/EEC and 1999/45/EC:

Xn Harmful, Xi Irritant, N Dangerous for the environment; R 22-43-48/22-50/53

Hydroquinone (1,4-Dihydroxybenzene): EINECS: 204-617-8; CAS RN: 123-31-9

Percentage: < 1 %

Classification according to Regulation (EC) No. 1272/2008:

Carc.2 H 351; Muta 2 H 341; Acute Tox. 4 H 302; Eye Dam. 1 H 318; Skin Sens. 1 H 317; Aquatic Acute. 1 H 400

Classification according to Directives 67/548/EEC and 1999/45/EC:

Xn Harmful, Xi Irritant, N Dangerous for the environment; R 22-40-41-43-50-68

- Additional reference: The wording of the hazard warnings can be looked up under section 16.

4. First-aid measures

- General information: Remove items of clothing contaminated by the product immediately.
- Inhalation: Move affected person to fresh air and keep at rest. In case of persistent complaints seek medical advice.
- Skin contact: Wash off thoroughly with plenty of water.
- Eye contact: Remove contact lenses, open eyelids, flush thoroughly with water and consult a doctor.
- Ingestion: If swallowed, rinse mouth and drink plenty of water. Do not induce vomiting. Seek medical advice.
- Special information for your doctor: None.

5. Fire-fighting-measures

- Suitable extinguishing media: CO₂, extinguishing powder, water spray. Fight larger fires with water spray jets or alcohol-resistant foam.
- Non suitable extinguishing media: None
- Specific Hazards: Hazardous combustion products: sulphur dioxide
- Protective equipment: Do not inhale explosion and combustion gases. Wear breathing apparatus and protective clothing.
- Particular fire and explosion hazards: None

6. Accidental release measures

- Personal precautions: Provide for sufficient ventilation.
- Environmental precautions: Do not empty into drains; prevent the product from contaminating surface or ground water. If waters or sewage are contaminated, report to the competent authorities. Dilute with plenty of water.
- Methods for cleaning up: Absorb with a liquid-binding agent (sand, mountain flour, sSurebinder, universal binding agent, sawdust). Sweep up and store in suitable container, dispose of contaminated material as waste labelled according to waste law in force.
- Additional information: Flush residues with water.

7. Handling and storage

- Handling:

- Safe handling: Provide for proper ventilation in work area. Avoid long-term and repeated skin contact; no special measures required if used properly.
- Fire and explosion control: No special measures required.

- Storage:

- Storage facilities and containers: No specific requirements.
- Storage with other substances: Do not store with acids, strong oxidants, and food.

- Further information on storage conditions:

- Store in well-sealed containers cool and dry. Store away from heat and direct sunlight. Do not expose to light. Keep locked up and out of reach of children. Recommended storage temperature: 5 to 15°C / 41 to 59°F.

- Storage class:

- Classification according to Ordinance on Industrial Safety and Health: n/a

8. Exposure controls/personal protection

- Additional information for system design: None

- Components with workplace-specific control parameters:	
111-46-6 Diethylene glycol	
MAC (Germany)	44 mg/m ³ ; 10 ml/ m ³ 4(I); DFG, Y

- Personal protective equipment:
General protection and hygiene measures: Wash hands before breaks and end of work. Do not inhale gases, vapours, or aerosols. Avoid skin and eye contact.
Respiratory protection: Not required.
Hand Protection: Wear protective gloves made from materials impermeable and resistant to the product/substance/preparation. The materials have to be chosen with due regard to penetration times, permeation rates, and degradation.
Glove material: The choice of a suitable glove not only depends on the material, but also on further quality features and may vary from manufacturer to manufacturer. As the product is a preparation composed of a number of substances, the stability of the glove materials is not predictable and, therefore, needs to be tested before use. The liquid tightness of the glove has to be tested before it is used again. Due to a lack of testing, no glove material can be recommended for the product/substance/preparation.
Penetration time of the glove material: The exact breakthrough time can be given by the protective gloves manufacturer and is to be observed.
Eye Protection: Wear safety goggles.
Skin/body protection: Wear protective clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

- General information	
Form:	liquid
Colour:	colourless
Odour:	specific
- Change of state	
Melting point / melting range	not determined
Boiling point / boiling range	> 100° C
- Flash point	not applicable
- Auto-flammability	no ~
- Explosion hazard	no ~
- Vapour pressure at 20° C	not specified
- Density at 20° C	1.18 g/cm ³
- Solubility in / miscibility with water	complete
-pH-value at 20° C	10.5
- Solvent content	
Organic solvent:	0.0 %
Water:	76.3 %
VOC (EC):	0.0 %
- Solids content:	23.7 %

10. Stability and reactivity

- Thermal decomposition/conditions to avoid:
No decomposition when used properly.
- Materials to avoid: Strong acids and oxidising agents
- Hazardous reactions: No hazardous reactions known.
- Hazardous decomposition products: no hazardous decomposition products known.

11. Toxicological information

- Acute toxicity

- Classification relevant LD/LC50 values:		
123-31-9 Hydroquinone		
Oral:	LD50	320 mg/kg (rat)
55-55-0 4-Methylaminophenol sulfate		
Oral:	LD50	237 mg/kg (rat)
Dermal:	LD50	> 1000mg/kg (rat)
13047-13-7 4-Hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidone		
Oral:	LD50	1000 mg/kg (rat)
Dermal:	LD50	> 2000 mg/kg (rat)
92-43-3 1-Phenyl-3-pyrazolidinone		
Oral:	LD50	200 mg/kg (rat)
140-01-2 Trilon C		
Oral:	LD50	4550 mg/kg (rat)
Dermal:	LD50	> 2000 mg/kg (rat)
Inhalative:	LC50	4 h 1000 – 5000 mg/m ³ (rat)
333-20-0 Potassium Thiocyanate		
Oral:	LD50	854 mg/kg (rat)
111-46-6 Diethylene glycol		
Oral:	LD50	12565 mg/kg (rat)
Oral:	LDLo	1000 mg/kg (human)
1310-73-2 Sodium Hydroxide		
Oral:	LD50	2000 mg/kg (rat)
584-08-7 Potassium carbonate		
Oral:	LD50	> 2000 mg/kg (rat)
21799-87-1 Hydroquinone sulfonic acid (potassium salt)		
Oral:	LD50	> 10000 mg/kg (rat)
Dermal:	LD50	> 5000 mg/kg (rabbit)

- Primary irritant effect:
- Skin: Irritant effect.
- Eye: Irritant effect.
- Sensitisation: May cause sensitisation by skin contact

12. Ecological information

- Ecotoxicity

- Aquatic toxicity	
55-55-0 4-Methylaminophenol sulfate	
EC50	72h: 10 mg/l (algae)
EC50	48h: 0.02 mg/l (Invertebrates)
LC50	96h: 0.25 mg/l (fathead minnow)
123-31-9 Hydroquinone	
EC50	48h: 0.29 mg/l (daphnia magna)
LC50	96h: 0.044 mg/l (Pimepales promelas)
13047-13-7 4-Hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidone	
EC50	24h: 7.1 ppm (Daphnia magna)
LC50	1 – 10 mg/l (fish fathead minnow / Pimephales promelas)
LC50	35 mg/l (fish ide / Leuciscus idus auratus Bade)
LC50	96h: 32 ppm (fish rainbow trout / Onchorhynchus mykiss)
92-43-3 1-Phenyl-3-pyrazolidinone	
LC50	96h: 5 mg/l (Pimepales promelas, fish)
1310-73-2 Sodium Hydroxide	
EC50	48h: 40.4 mg/l (crustacea)
LC50	96h: 196 mg/l (fish)
333-20-0 Potassium Thiocyanate	
EC50	48h: 11 mg/l (Daphnia magna)
LC50	96h: 100 mg/l (Onchorhynchus mykiss)

- Remark: Harmful to fish

- General Information:

Water hazard class 2 (self-assessment according to VwVwS(German administrative regulation regarding water pollutants)): Hazardous to water.

Do not empty into drains; do not let product contaminate ground water, waters or sewage. Harmful to aquatic organisms.

13. Disposal considerations

- Product:

- Empfehlung: Recommendation: Do not dispose of the product through household waste. Do not let product contaminate sewage.

- European Waste Directory
090101 water-based developer and activator solutions

- Uncleaned packaging:

- Recommendation: Disposal according to official regulations and requirements.

- Recommended cleaning agent: Water, if necessary, with cleaning agent.

14. Transport information

- Land transport ADR/RID and GGVS/GGVE (cross-border/inland): - ADR/GGVS/E class: No dangerous good, not classified
- Maritime transport IMDG/GGVSea: - IMDG/GGVSea-class: No dangerous good, not classified - Marine pollutant: No
- Air transport ICAO-TI and IATA-DGR: - ICAO/IATA class: No dangerous good, not classified
- UN "Model Regulation" : No dangerous good, not classified

15. Regulatory information

Designation according to EC guidelines:

The mixture is classified and labelled according to the CLP Regulation (EC) No. 1272/2008:

- Hazard pictogram



GHS 07

- Signal word: Warning

- Hazard statements

H 302 Harmful if swallowed

H 315 Causes skin irritation

H 317 May cause an allergic skin reaction

H 319 Causes serious eye irritation

H 412 Harmful to aquatic life with long lasting effects

- Precautionary statements

P 273 Avoid release to the environment

P 301 + P 312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P 302 + P 352 IF ON SKIN: Wash with plenty of soap and water

P 305 + P 351 + P 338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P 337 + P 313 If eye irritation persists: Get medical advice/attention

P 501 Dispose of contents/container to hazardous waste

Special designation of certain preparations: -

National regulations:

Classification according to Ordinance on Industrial Safety and Health (Betriebssicherheitsverordnung: BetrSichV): -

Water hazard class (according VwVwS): Water hazard class 2 (self-assessment): hazardous to water

16. Other information

The data given in this safety data sheet is based on our present knowledge. It does not guarantee any specific product features and does not establish a contractual legal relationship.

- Relevant H statements:

- H 290 May be corrosive to metals
- H 302 Harmful if swallowed
- H 312 Harmful in contact with skin
- H 314 Causes severe skin burns and eye damage
- H 315 Causes skin irritation
- H 317 May cause an allergic skin reaction
- H 318 Causes serious eye damage
- H 319 Causes serious eye irritation
- H 332 Harmful if inhaled
- H 335 May cause respiratory irritation
- H 341 Suspected of causing genetic defects
- H 351 Suspected of causing cancer
- H 361 Suspected of damaging fertility or the unborn child
- H 373 May cause damage to organs through prolonged or repeated exposure
- H 400 Very toxic to aquatic life
- H 410 Very toxic to aquatic life with long lasting effects
- H 411 Toxic to aquatic life with long lasting effects
- H 412 Harmful to aquatic life with long lasting effects

- Relevant R-phrases

- R 20 Harmful by inhalation.
- R 20/21/22 Harmful by inhalation. Harmful in contact with skin. Harmful if swallowed.
- R 22 Harmful if swallowed.
- R 32 Contact with acids liberates very toxic gas.
- R 35 Causes severe burns.
- R 36 Irritating to eyes.
- R 36/38 Irritating to eyes. Irritating to skin.
- R 36/37/38 Irritating to eyes, respiratory system and skin.
- R 40 Limited evidence of a carcinogenic effect.
- R 41 Risk of serious damage to eyes.
- R 43 May cause sensitization by skin contact.
- R 48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.
- R 50 Very toxic to aquatic organisms.
- R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R 51/53 Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.
- R 52 Harmful to aquatic organisms.
- R 52/53 Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.
- R 63 Possible risk of harm to the unborn child
- R 68 Possible risk of irreversible effects.

- Responsible for data sheet: management

- Person of contact: Dipl.-Ing. Heribert Schain

- Abbreviations and Acronyms

ADR: Accord europeen sur le transport des marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Reglement internationale concernent le transport des marchandises dangereuses par chemin de fer (Regulations concerning the international Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)

VOC: Volatile Organic Compounds (USA, EC)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

LDLo Lethal dose low

EC50 half maximal effective concentration