

Material Safety Data Sheet

According to 91/155 EEC

Printing date 28.01.2005

Reviewed on 28.01.2005

1 Identification of substance:

- **Product details:**
- **Trade name: ATM 49 Developer Part 1**
- **Application of the substance / the preparation** Photographic developer
- **Manufacturer/Supplier:**
 ADOX FOTOIMPEX
 Alte Schoenhauserstrasse 32b
 D-10119 Berlin
 Tel.: +49 (0)30 28599081
 Fax: +49 (0)30 28599475
 e-mail: info@adox.de
 www.adox.de
- **Informing department:** Tel.: +49 (0)30 28599081
- **Emergency information: +49 (0)30 28599081**

2 Composition/Data on components:

- **Chemical characterization**
- **Description:** Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

CAS: 123-31-9 EINECS: 204-617-8	1,4-dihydroxybenzene (hydroquinone) Xn, N; R 22-40-41-43-68-50	25-50%
CAS: 6065-27-6 EINECS: 227-995-6	N,N-Diethyl-1,4-phenylendiammoniumsulfat Xn; R 21/22	25-50%

- **Additional information** For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

- **Hazard designation:**



Xn Harmful
N Dangerous for the environment

- **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 21/22 Harmful in contact with skin and if swallowed.

R 40 Limited evidence of a carcinogenic effect.

R 41 Risk of serious damage to eyes.

R 43 May cause sensitisation by skin contact.

R 50 Very toxic to aquatic organisms.

R 68 Possible risk of irreversible effects.

- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

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24 hour transportation emergency telephone number: Chemtrec 800-424-9300

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4 First aid measures

- **General information**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
- **After eye contact**
Rinse opened eye for several minutes under running water. Then consult doctor.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
Induce vomiting and call for medical help.

5 Fire fighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
- **For safety reasons unsuitable extinguishing agents** Water with a full water jet.
- **Special hazards caused by the material, its products of combustion or resulting gases:**
Can be released in case of fire
Carbon monoxide (CO)
Nitrogen oxides (NO_x)
- **Protective equipment:**
Do not inhale explosion gases or combustion gases.
Wear self-contained breathing apparatus.

6 Accidental release measures

- **Person-related safety precautions:**
Wear protective clothing.
Avoid causing dust.
- **Measures for environmental protection:**
Inform respective authorities in case product reaches water or sewage system.
Do not allow to enter drainage system, surface or ground water.
- **Measures for cleaning/collecting:**
Dispose of contaminated material as waste according to item 13.
- **Additional information:** See Section 8 for information on personal protection equipment.

7 Handling and storage

- **Handling**
- **Information for safe handling:**
Open and handle container with care.
Prevent formation of dust.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:** Not required.

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- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed containers.
- **Storage class** LGK 13 (VCI-Concept)

8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Components with limit values that require monitoring at the workplace:**

123-31-9 1,4-dihydroxybenzene (hydroquinone)

MEL	Long-term value: 0.5 mg/m ³
OES	Short-term value: 4 mg/m ³
	Long-term value: 2 mg/m ³
	CHAN, ILV

- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
The usual precautionary measures should be adhered to general rules for handling chemicals.
Keep away from foodstuffs, beverages and food.
Take off immediately all contaminated clothing
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Do not eat, drink or smoke while working.
- **Breathing equipment:** Not required.
- **Protection of hands:**
Protective gloves.
The protective gloves to be used must comply with the specifications of the EC directive 89/686/EEC and the resultant standard EN 374.
This recommendation applies only to the product stated in the Safety Data Sheet and supplied by us as well as to the purpose specified by us.
Only use chemical-protective gloves with CE-labelling of category III.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
Nitrile rubber, NBR
Butyl rubber, BR
Fluorocarbon rubber (Viton)
Chloroprene rubber, CR
Recommended thickness of the material: ≥ 0.5 mm
- **Penetration time of glove material**
Value for permeation: Level ≥ 6 (480 min)
The determined penetration times according to EN 374 part III are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.
- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**
Synthetic gloves
Value for permeation: Level:
 ≥ 3 (60 min)
- **Not suitable are gloves made of the following materials:** Natural rubber, NR
- **Eye protection:** Tightly sealed safety glasses.

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- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

· General Information

Form:	Solid.
Colour:	Whitish
Odour:	Odourless

· Change in condition

Melting point/Melting range:	> 170°C
Boiling point/Boiling range:	Not determined

· Flash point:	Not applicable
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· Ignition temperature:	515°C
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· Self-inflammability:	Product is not selfigniting.
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· Danger of explosion:	Product is not explosive.
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· Density	Not determined
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· Solubility in / Miscibility with	
Water at 20°C:	> 50 g/l

· Solvent content:	
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· Solids content:	100.0 %
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10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:** No dangerous decomposition products known

11 Toxicological information

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

123-31-9 1,4-dihydroxybenzene (hydroquinone)

Oral	LD50	320 mg/kg (rat)
Dermal	LD50	>900 mg/kg (rat)

· Primary irritant effect:

- **on the skin:** No irritant effect.
- **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** Sensitization possible by skin contact.
- **Subacute to chronic toxicity:**
Limited evidence of a carcinogenic effect.
Possible risk of irreversible effects.

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- **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

Harmful
Irritant

Hydroquinone has been included in the German "TRGS 905" (Technical Rules for Dangerous Substances/Index of carcinogen and mutagen substances or substances dangerous to reproductive systems), and has been classified as "Category 3" of carcinogen and mutagen substances (3 = category of lowest dangerousness). The according EU committees have not yet evaluated this classification.

12 Ecological information:

- **Information about elimination (persistence and degradability):** Not determined
- **Behaviour in environmental systems:** Not determined
- **Mobility and bioaccumulation potential:** Not determined
- **Ecotoxicological effects:** Not determined
- **Acquatic toxicity:** Not determined
- **Remark:** Very toxic for fish
- **General notes:**
Water danger class 3 (German Regulation) (Self-assessment): extremely hazardous for water. Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms

13 Disposal considerations

- **Product:**
- **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Must be specially treated under adherence to official regulations.

- **European waste catalogue**

09 01 01	water-based developer and activator solutions
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- **Uncleaned packagings:**
- **Recommendation:**
Non contaminated packagings can be used for recycling.
Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

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14 Transport information

· Land transport ADR/RID (cross-border)



- **ADR/RID-GGVS/E Class:** 9 Miscellaneous dangerous substances and articles.
- **Kemler Number:** 90
- **UN-Number:** UN 3082
- **Packaging group:** III
- **Label:** 9
- **Designation of goods:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hydroquinone)
- **Remarks:** "Limited quantity" according to chapter 3.4 ADR

· Maritime transport IMDG:



- **IMDG Class:** 9
- **UN Number:** UN 3082
- **Label:** 9
- **Packaging group:** III
- **EMS Number:** F-A,S-F
- **Correct technical name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hydroquinone)
- **Remarks:** "Limited quantity" according to chapter 3.4 IMDG

· Air transport ICAO-TI and IATA-DGR:



- **ICAO/IATA Class:** 9
- **UN/ID Number:** UN 3082
- **Label:** 9
- **Packaging group:** III
- **Correct technical name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hydroquinone)
- **Remarks:** Packing Instruction PAX/CAO 911

15 Regulatory information

· **Designation according to EC guidelines:**

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· **Code letter and hazard designation of product:**



Xn Harmful
N Dangerous for the environment

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- **Hazard-determining components of labelling:**

- 1,4-dihydroxybenzene (hydroquinone)

- **Risk phrases:**

- 21/22 Harmful in contact with skin and if swallowed.
- 40 Limited evidence of a carcinogenic effect.
- 41 Risk of serious damage to eyes.
- 43 May cause sensitisation by skin contact.
- 50 Very toxic to aquatic organisms.
- 68 Possible risk of irreversible effects.

- **Safety phrases:**

- 24 Avoid contact with skin.
- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

- **National regulations**

- **Technical instructions (air):**

Class	Share in %
I	80.0

- **Water hazard class:** Water danger class 3 (Self-assessment): extremely hazardous for water.

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant R-phrases**

- 21/22 Harmful in contact with skin and if swallowed.
- 22 Harmful if swallowed.
- 40 Limited evidence of a carcinogenic effect.
- 41 Risk of serious damage to eyes.
- 43 May cause sensitisation by skin contact.
- 50 Very toxic to aquatic organisms.
- 68 Possible risk of irreversible effects.

- **Contact:** Phon: ++49 39291 4250

- **Sources** Internal physical tests, MSDS of the ingredients, EC-Directives

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1 Identification of substance:

- **Product details:**
- **Trade name:** ATM 49 Developer Part 2
- **Application of the substance / the preparation** Photographic developer
- **Manufacturer/Supplier:**
ADOX FOTOIMPEX
Alte Schönhauserstrasse 32 b-c
D-10119 Berlin
Tel.: +49 (0)30 2859081
Fax: +49 (0)30 28599475
e-mail: info@adox.de
www.adox.de
- **Informing department:** Tel.: +49 (0)30 28599081
- **Emergency information:** Tel.: +49 (0)30 28599081

2 Composition/Data on components:

- **Chemical characterization**
- **Description:** Mixture of the substances listed below with harmless additions.
- **Dangerous components:** Void
- **Additional information** For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

- **Hazard designation:** void
- **Information pertaining to particular dangers for man and environment**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system**
The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

4 First aid measures

- **General information** No special measures required.
- **After inhalation** Supply fresh air.
- **After skin contact** The product is not skin irritating.
- **After eye contact**
Rinse opened eye for several minutes under running water. Then consult doctor.
- **After swallowing** In case of persistent symptoms consult doctor.

5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents** Water with a full water jet.

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- **Special hazards caused by the material, its products of combustion or resulting gases:**
Can be released in case of fire
Sulphur dioxide (SO₂)
- **Protective equipment:** Do not inhale explosion gases or combustion gases.

6 Accidental release measures

- **Person-related safety precautions:** Wear protective clothing.
- **Measures for environmental protection:**
Do not allow to enter drainage system, surface or ground water.
- **Measures for cleaning/collecting:** Collect mechanically.
- **Additional information:**
No dangerous materials are released.
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

7 Handling and storage

- **Handling**
- **Information for safe handling:** No special measures required.
- **Information about protection against explosions and fires:**
No special measures required.
The product is not flammable
- **Storage**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Components with limit values that require monitoring at the workplace:**

1330-43-4 disodium tetraborate, anhydrous
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OES	Long-term value: 1 mg/m ³
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- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
The usual precautionary measures should be adhered to general rules for handling chemicals.
Keep away from foodstuffs, beverages and food.
Take off immediately all contaminated clothing
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Do not eat, drink or smoke while working.
- **Breathing equipment:** Not required.

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Trade name: ATM 49 Developer Part 2

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- **Protection of hands:**

Protective gloves.

The protective gloves to be used must comply with the specifications of the EC directive 89/686/EEC and the resultant standard EN 374.

This recommendation applies only to the product stated in the Safety Data Sheet and supplied by us as well as to the purpose specified by us.

Only use chemical-protective gloves with CE-labelling of category III.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

- **Material of gloves** Synthetic gloves

- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

Synthetic gloves

Value for permeation: Level:

≥ 3 (60 min)

- **Not suitable are gloves made of the following materials:** Natural rubber, NR

- **Eye protection:** Safety glasses

9 Physical and chemical properties:

- **General Information**

Form:	Solid.
Colour:	Whitish
Odour:	Odourless

- **Change in condition**

Melting point/Melting range: Not determined**Boiling point/Boiling range:** Not determined

- **Flash point:** Not applicable

- **Self-inflammability:** Product is not selfigniting.

- **Danger of explosion:** Product is not explosive.

- **Density** Not determined

- **Solubility in / Miscibility with Water at 20°C:** > 100 g/l

- **Solvent content:**

- **Solids content:** 100.0 %

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**

No decomposition if used according to specifications.

- **Dangerous reactions** Reacts with acids releasing sulphur dioxide

- **Dangerous products of decomposition:** No dangerous decomposition products known

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11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
 - **on the skin:** No irritant effect.
 - **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**
The product is not subject to classification according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

12 Ecological information:

- **Information about elimination (persistence and degradability):** Not determined
- **Behaviour in environmental systems:** Not determined
- **Mobility and bioaccumulation potential:** Not determined
- **Ecotoxicological effects:** Not determined
- **Acquatic toxicity:** Not determined
- **Behaviour in sewage processing plants:** Not determined
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

13 Disposal considerations

- **Product:**
- **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Must be specially treated under adherence to official regulations.
- **European waste catalogue**
09 01 01 | water-based developer and activator solutions
- **Uncleaned packagings:**
- **Recommendation:**
Non contaminated packagings can be used for recycling.
Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.
- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14 Transport information

- **Land transport ADR/RID (cross-border)**
- **ADR/RID-GGVS/E Class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -

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- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -

- **Transport/Additional information:** Not dangerous according to the above specifications.

15 Regulatory information

- **Designation according to EC guidelines:**
Observe the normal safety regulations when handling chemicals
The product is not subject to identification regulations under EC Directives and the Ordinance on Hazardous Materials (GefStoffV).
- **National regulations**
- **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Contact:** Phon: ++49 39291 4250
- **Sources** Internal physical tests, MSDS of the ingredients, EC-Directives

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