

Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date 16.04.2009

Version 5

Revision: 03.03.2009

1 Identification of substance:

- **Product details:**
- **Trade name: Duromat Developer part A**
- **Article number:** 00042, 04042
- **Application of the substance / the preparation**
 Photochemicals
 Developer for X-ray films
 Reserved for industrial and professional use.
- **Manufacturer/Supplier:**
 ADEFO-CHEMIE GmbH
 Justus-von-Liebig-Str. 24-26
 D-63128 Dietzenbach
 Tel.: +49 6074 84239-0
 Fax: +49 6074 84239-63
 E-Mail: service@adefo-chemie.de
 www.adefo-chemie.de
- **Informing department:**
 Tel.: +49 6074 84239-0
 Fax: +49 6074 84239-63
 Competent person according to 1907/2006/EC, Annex II:
 E-Mail: kr@calbe-chemie.de
- **Emergency information:** Tel.: 0700-24112112 (CAL)

2 Hazards identification

- **Hazard designation:**



Xn Harmful

- **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 36/38 Irritating to eyes and skin.
 R 40 Limited evidence of a carcinogenic effect.
 R 43 May cause sensitisation by skin contact.
 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.

3 Composition/information on ingredients

- **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, Xi, N; R 22-40-41-43-68-50	5.0-10%
CAS: 111-46-6 EINECS: 203-872-2	2,2'-oxybisethanol Xn; R 22	5.0-10%

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CAS: 584-08-7 EINECS: 209-529-3	potassium carbonate Xi; R 36/37/38	2.0-5.0%
CAS: 1310-58-3 EINECS: 215-181-3	potassium hydroxide C, Xn; R 22-35	0.5-2.0%
CAS: 13047-13-7 EINECS: 235-920-3	4-(hydroxymethyl)-4-methyl-1-phenylpyrazolidin-3-one Xn, Xi, N; R 22-43-51/53	< 0.5%

Additional information

Main component: water

For the wording of the listed risk phrases refer to section 16.

4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
- **After eye contact**
Rinse opened eye for several minutes under running water (> 15 min). Then consult doctor.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; instantly call for medical help.
- **Information for doctor**
- **The following symptoms may occur:** No known symptoms to date.

5 Fire fighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
Use fire fighting measures that suit the environment.
- **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)
sulphur dioxide (SO₂)
- **Protective equipment:**
No special measures required.
Do not inhale explosion gases or combustion gases.
- **Additional information** The product is not flammable

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:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

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Dispose of contaminated material as waste according to item 13.

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 precautions necessary if used correctly.**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:**

Keep container tightly sealed.

Store in a cool place.

Recommended storage temperature: 5-30°C**Storage class** LGK 12 (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:****111-46-6 2,2'-oxybisethanol**WEL Long-term value: 101 mg/m³, 23 ppm**1330-43-4 boric acid, disodium salt**WEL Long-term value: 1 mg/m³**1310-58-3 potassium hydroxide**WEL Short-term value: 2 mg/m³**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.

Do not eat, drink or smoke while working.

Take off immediately all contaminated clothing

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

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.

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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

	Thickness (mm)	Breakthrough time (min)
Nitril rubber	0,38	> 480
Neoprene	0,65	> 240
Butyl rubber	0,36	> 480

As protection from splashes 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**Body protection:** Protective work clothing.

9 Physical and chemical properties:

General Information

Form:	Fluid
Colour:	Colourless
Odour:	Not characteristic

Change in condition**Melting point/Melting range:** Not determined**Boiling point/Boiling range:** > 100°C

Flash point:	Not applicable
Self-inflammability:	Product is not selfigniting.
Danger of explosion:	Product is not explosive.
Vapour pressure at 20°C:	23 hPa
Density at 20°C	1.32 g/cm ³
Solubility in / Miscibility with Water:	miscible
pH-value at 25°C:	11.5
Viscosity:	
dynamic:	Not determined
kinematic:	Not determined
Solvent content:	
Organic solvents:	5.1 %
Water:	57.1 %
Solids content:	36.9 %

10 Stability and reactivity

Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

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

1310-58-3 potassium hydroxide

Oral | LD50 | 365 mg/kg

- **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritant effect.

- **Additional toxicological information:**

This statement was deduced from the properties of the single components.
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.

- **Sensitisation** May cause sensitisation by skin contact.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
Limited evidence of a carcinogenic effect.
Possible risk of irreversible effects.

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:**
At present there are no ecotoxicological assessments.
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.

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According to the criteria of the EU-classification and labelling "dangerous for environment"(1999/45/EG) the substance/ the product has to be classified as non-hazardous for the environment.
The product does not contain organically bounded halogens (AOX-free).

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.
Packagings that cannot be cleaned are to be disposed of in the same manner as the product.
EAK-No. 15 01 10
- **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:** -
- **Marine pollutant:** No

- **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:**
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

- **Hazard-determining components of labelling:**
1,4-dihydroxybenzene (hydroquinone)
potassium hydroxide

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· Risk phrases:

- 36/38 Irritating to eyes and skin.
- 40 Limited evidence of a carcinogenic effect.
- 43 May cause sensitisation by skin contact.
- 68 Possible risk of irreversible effects.

· Safety phrases:

- 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.

· National regulations**· Information about limitation of use:**

Employment restrictions concerning pregnant and lactating women must be observed.

· Technical instructions (air):

Class	Share in %
I	6.1
NK	5.1

- 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

- 22 Harmful if swallowed.
- 35 Causes severe burns.
- 36/37/38 Irritating to eyes, respiratory system and skin.
- 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.
- 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- 68 Possible risk of irreversible effects.

- Recommended restriction of use** No public product, only for commercial use

· Sources

- applicable EEC directives:
 - 1999/45/EC last change 2006/8/EC
 - 67/548/EC last change 2004/73/EC (29. ATP)
- Internal physical tests, MSDS of the ingredients

- * Data compared to the previous version altered.**

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1 Identification of substance:

- **Product details:**
- **Trade name: Duromat Developer part B**
- **Article number:** 00042, 04042
- **Application of the substance / the preparation**
 Photochemicals
 Developer for X-ray films
 Reserved for industrial and professional use.
- **Manufacturer/Supplier:**
 ADEFO-CHEMIE GmbH
 Justus-von-Liebig-Str. 24-26
 D-63128 Dietzenbach
 Tel.: +49 6074 84239-0
 Fax: +49 6074 84239-63
 E-Mail: service@adefo-chemie.de
 www.adefo-chemie.de
- **Informing department:**
 Tel.: +49 6074 84239-0
 Fax: +49 6074 84239-63
 Competent person according to 1907/2006/EC, Annex II:
 E-Mail: kr@calbe-chemie.de
- **Emergency information:** Tel.: 0700-24112112 (CAL)

2 Hazards identification

- **Hazard designation:**



Xn Harmful

- **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 22 Harmful if swallowed.
 R 36/38 Irritating to eyes and skin.
- **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.

3 Composition/information on ingredients

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

- **Dangerous components:**

CAS: 111-46-6 EINECS: 203-872-2	2,2'-oxybisethanol	Xn; R 22	25-50%
CAS: 64-19-7 EINECS: 200-580-7	acetic acid, of a concentration of	C; R 10-35	15-20%
CAS: 107-21-1 EINECS: 203-473-3	ethane-1,2-diol	Xn; R 22	2.0-5.0%

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CAS: 92-43-3

1-phenyl-3-pyrazolidone

Xn, N; R 22-51/53

1.0-2.0%

EINECS: 202-155-1

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

4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
- **After eye contact**
Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; instantly call for medical help.
- **Information for doctor**
- **The following symptoms may occur:** No known symptoms to date.

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)
- **Protective equipment:** Wear self-contained breathing apparatus.

6 Accidental release measures

- **Person-related safety precautions:**
Wear protective clothing.
Ensure adequate ventilation
- **Measures for environmental protection:**
Do not allow to enter drainage system, surface or ground water.
- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to item 13.
- **Additional information:**
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 precautions necessary if used correctly.

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- **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.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in a cool place.
- **Recommended storage temperature:** 5-30°C
- **Storage class** LGK 12 (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:**

111-46-6 2,2'-oxybisethanol

WEL	Long-term value: 101 mg/m ³ , 23 ppm
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107-21-1 ethane-1,2-diol

WEL	Short-term value: 104** mg/m ³ , 40** ppm
	Long-term value: 10* 52** mg/m ³ , 20** ppm
	Sk *particulate **vapour

- **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.
Do not eat, drink or smoke while working.
Take off immediately all contaminated clothing
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
- **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**

	Thickness (mm)	Breakthrough time (min)
Nitril rubber	0,38	> 480
Neoprene	0,65	> 240
Butyl rubber	0,36	> 480
- **As protection from splashes 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

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- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

· General Information

Form:	Fluid
Colour:	Light yellow
Odour:	Acidic

· Change in condition

Melting point/Melting range: Not determined
Boiling point/Boiling range: > 100°C

· **Flash point:** > 70°C

· **Ignition temperature:** 345°C

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

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

· Critical values for explosion:

Lower:	0.7 Vol %
Upper:	22.0 Vol %

· **Vapour pressure at 20°C:** 23 hPa

· **Density at 20°C** 1.101 g/cm³

· Solubility in / Miscibility with

Water: miscible

· **pH-value at 25°C:** 2.3

· Viscosity:

dynamic:	Not determined
kinematic:	Not determined

· Solvent content:

Organic solvents:	47.6 %
Water:	43.8 %

· **Solids content:** 6.6 %

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

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11 Toxicological information

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

111-46-6 2,2'-oxybisethanol

Oral	LD50	12565 mg/kg (rat)
Dermal	LD50	11890 mg/kg (rabbit)

- **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.

- **on the eye:** Irritant effect.

- **Sensitization:** No sensitizing effect known.

- **Subacute to chronic toxicity:** No known symptoms to date.

- **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

This statement was deduced from the properties of the single components.

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.

At present there are no ecotoxicological assessments.

The product does not contain organically bounded halogens (AOX-free).

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.

Packagings that cannot be cleaned are to be disposed of in the same manner as the product.

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EAK-No. 15 01 10

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

14 Transport information

- **Land transport ADR/RID (cross-border)**



- **ADR/RID-GGVS/E Class:** 8 Corrosive substances.
- **Kemler Number:** 80
- **UN-Number:** UN 3265
- **Packaging group:** III
- **Label** 8
- **Designation of goods:** CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (ACETIC ACID SOLUTION)
- **Remarks:** "Limited quantity" according to chapter 3.4 ADR

- **Maritime transport IMDG:**



- **IMDG Class:** 8
- **UN Number:** UN 3265
- **Label** 8
- **Packaging group:** III
- **EMS Number:** F-A,S-B
- **Marine pollutant:** No
- **Correct technical name:** CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (ACETIC ACID)
- **Remarks:** "Limited quantity" according to chapter 3.4 IMDG

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



- **ICAO/IATA Class:** 8
- **UN/ID Number:** UN 3265
- **Label** 8
- **Packaging group:** III
- **Correct technical name:** CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (ACETIC ACID SOLUTION)
- **Remarks:** Packing Instruction
PAX 818, CAO 820

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)

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Trade name: Duromat Developer part B

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



Xn Harmful

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

2,2'-oxybisethanol

· **Risk phrases:**

22 Harmful if swallowed.
36/38 Irritating to eyes and skin.

· **Safety phrases:**

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.

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
II	15.2
NK	34.4

· **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.

· **Relevant R-phrases**

10 Flammable.
22 Harmful if swallowed.
35 Causes severe burns.
51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Recommended restriction of use** No public product, only for commercial use

· **Sources**

applicable EEC directives:
- 1999/45/EC last change 2006/8/EC
- 67/548/EC last change 2004/73/EC (29. ATP)
Internal physical tests, MSDS of the ingredients

· * **Data compared to the previous version altered.**



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according to 1907/2006/EC, Article 31

Printing date 16.04.2009

Version 3

Revision: 03.03.2009

1 Identification of substance:

- **Product details:**
- **Trade name: Duromat Fixer part A**
- **Article number:** 00042, 07042
- **Application of the substance / the preparation**
Photochemicals
Fixing agent for X-ray films
Reserved for industrial and professional use.
- **Manufacturer/Supplier:**
ADEFO-CHEMIE GmbH
Justus-von-Liebig-Str. 24-26
D-63128 Dietzenbach
Tel.: +49 6074 84239-0
Fax: +49 6074 84239-63
E-Mail: service@adefo-chemie.de
www.adefo-chemie.de
- **Informing department:**
Tel.: +49 6074 84239-0
Fax: +49 6074 84239-63
Competent person according to 1907/2006/EC, Annex II:
E-Mail: kr@calbe-chemie.de
- **Emergency information:** Tel.: 0700-24112112 (CAL)

2 Hazards identification

- **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.

3 Composition/information on ingredients

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

- **Dangerous components:**

CAS: 64-19-7 EINECS: 200-580-7	acetic acid, of a concentration of	C; R 10-35	2.0-5.0%
CAS: 7783-18-8 EINECS: 231-982-0	ammonium thiosulphate		25-50%
CAS: 7757-83-7 EINECS: 231-821-4	sodium sulphite		2.0-5.0%

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



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Trade name: Duromat Fixer part A

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4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air.
- **After skin contact**
Instantly wash with water and soap and rinse thoroughly.
The product is not skin irritating.
- **After eye contact**
Rinse opened eye for several minutes under running water (> 15 min). Then consult doctor.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
In case of persistent symptoms consult doctor.
- **Information for doctor**
- **The following symptoms may occur:** No known symptoms to date.

5 Fire fighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
Use fire fighting measures that suit the environment.
- **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
sulphur dioxide (SO₂)
Nitrogen oxides (NO_x)
- **Protective equipment:**
Do not inhale explosion gases or combustion gases.
Put on breathing apparatus.
- **Additional information** The product is not flammable

6 Accidental release measures

- **Person-related safety precautions:** Not required.
- **Measures for environmental protection:**
Do not allow to enter drainage system, surface or ground water.
- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to item 13.
- **Additional information:**
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.

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- **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 a cool place.
- **Recommended storage temperature:** 5-30°C
- **Storage class** LGK 12 (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:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **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.
- **Breathing equipment:** Not required.
- **Protection of hands:**
Protective gloves.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves** Synthetic gloves
- **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.
- **As protection from splashes 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:	Fluid
Colour:	Colourless
Odour:	Not characteristic

· Change in condition

Melting point/Melting range: < 5°C

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Boiling point/Boiling range: > 100°C	
· Flash point:	Not applicable
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Vapour pressure at 20°C:	23 hPa
· Density at 20°C	1.31 g/cm ³
· Solubility in / Miscibility with Water:	miscible
· pH-value at 20°C:	5
· Solvent content:	
Organic solvents:	4.1 %
Water:	43.7 %
· Solids content:	52.2 %

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Dangerous reactions**
Reacts with strong acids and alkali
Reacts with acids releasing sulphur dioxide
Reacts with alkalis releasing ammonia
- **Dangerous products of decomposition:**
Sulphur dioxide
Ammonia

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
 - **on the skin:** No irritant effect.
 - **on the eye:** Irritant effect.
- **Sensitization:** No sensitizing effect known.
- **Subacute to chronic toxicity:** No known symptoms to date.
- **Additional toxicological information:**
This statement was deduced from the properties of the single components.
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

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Trade name: Duromat Fixer part A

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- **Ecotoxicological effects:** Not determined
- **Acquatic toxicity:** Not determined
- **Behaviour in sewage processing plants:** Not determined
- **General notes:**
At present there are no ecotoxicological assessments.
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.
According to the criteria of the EU-classification and labelling "dangerous for environment"(1999/45/EG) the substance/ the product has to be classified as non-hazardous for the environment.
The product does not contain organically bounded halogens (AOX-free).

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**

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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.
Packagings that cannot be cleaned are to be disposed of in the same manner as the product.
EAK-No. 15 01 10
- **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:** -
- **UN Number:** -

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

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

15 Regulatory information

- **Designation according to EC guidelines:**
The product is not subject to identification regulations under EC Directives and the Ordinance on Hazardous Materials (GefStoffV).

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Trade name: Duromat Fixer part A

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- **Special designation of certain preparations:**
Safety data sheet available for professional user on request.
- **National regulations**
- **Technical instructions (air):**

Class	Share in %
II	4.1

- **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.

- **Relevant R-phrases**
10 Flammable.
35 Causes severe burns.
- **Recommended restriction of use** No public product, only for commercial use
- **Sources**
applicable EEC directives:
 - 1999/45/EC last change 2006/8/EC
 - 67/548/EC last change 2004/73/EC (29. ATP)Internal physical tests, MSDS of the ingredients
- *** Data compared to the previous version altered.**

GB

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1 Identification of substance:

- **Product details:**
- **Trade name: Duromat Fixer part B**
- **Article number:** 00042, 07042
- **Application of the substance / the preparation**
 Photochemicals
 Fixing agent for X-ray films
 Reserved for industrial and professional use.
- **Manufacturer/Supplier:**
 ADEFO-CHEMIE GmbH
 Justus-von-Liebig-Str. 24-26
 D-63128 Dietzenbach
 Tel.: +49 6074 84239-0
 Fax: +49 6074 84239-63
 E-Mail: service@adefo-chemie.de
 www.adefo-chemie.de
- **Informing department:**
 Tel.: +49 6074 84239-0
 Fax: +49 6074 84239-63
 Competent person according to 1907/2006/EC, Annex II:
 E-Mail: kr@calbe-chemie.de
- **Emergency information:** Tel.: 0700-24112112 (CAL)

2 Hazards identification

- **Hazard designation:**



Xi Irritant

- **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 36/38 Irritating to eyes and skin.
- **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.

3 Composition/information on ingredients

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

- **Dangerous components:**

CAS: 10043-01-3 EINECS: 233-135-0	aluminium sulphate	Xi; R 38-41	5.0-10%
CAS: 7664-93-9 EINECS: 231-639-5	sulphuric acid	C; R 35	2.0-5.0%

- **Additional information**
 Main component: water

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Trade name: Duromat Fixer part B

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For the wording of the listed risk phrases refer to section 16.

4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air.
- **After skin contact**
Instantly wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact**
Rinse opened eye for several minutes under running water (> 15 min). Then consult doctor.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; instantly call for medical help.
- **Information for doctor**
- **The following symptoms may occur:** No known symptoms to date.

5 Fire fighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
Use fire fighting measures that suit the environment.
- **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
Sulphur oxides (SO_x)
- **Protective equipment:** Do not inhale explosion gases or combustion gases.
- **Additional information** The product is not flammable

6 Accidental release measures

- **Person-related safety precautions:** Not required.
- **Measures for environmental protection:**
Do not allow to enter drainage system, surface or ground water.
- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to item 13.
- **Additional information:**
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 precautions necessary if used correctly.

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Trade name: Duromat Fixer part B

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- **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:**
Keep container tightly sealed.
Store in a cool place.
- **Recommended storage temperature:** 5-30°C
- **Storage class** LGK 12 (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:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **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.
Do not eat, drink or smoke while working.
Take off immediately all contaminated clothing
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
- **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**

	Thickness (mm)	Breakthrough time (min)
Nitril rubber	0,38	> 480
Neoprene	0,65	> 240
Butyl rubber	0,36	> 480
- **As protection from splashes 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

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Trade name: Duromat Fixer part B

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

9 Physical and chemical properties:

· General Information

Form:	Fluid
Colour:	Colourless
Odour:	Odourless

· Change in condition

Melting point/Melting range: < 5°C
Boiling point/Boiling range: > 100°C

· **Flash point:** Not applicable

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

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

· **Vapour pressure at 20°C:** 23 hPa

· **Density at 20°C** 1.127 g/cm³

· Solubility in / Miscibility with

Water: miscible

· **pH-value at 25°C:** < 1

· Viscosity:

dynamic: Not determined
kinematic: Not determined

· Solvent content:

Organic solvents: 0.0 %
Water: 87.9 %

· **Solids content:** 8.5 %

10 Stability and reactivity

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

No decomposition if used according to specifications.

· **Dangerous reactions** Reacts with light alloys to form hydrogen

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

11 Toxicological information

· **Acute toxicity:**

· **Primary irritant effect:**

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Irritant effect.

· **Sensitization:** No sensitizing effect known.

· **Subacute to chronic toxicity:** No known symptoms to date.

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· **Additional toxicological information:**

This statement was deduced from the properties of the single components.
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:
Irritant

* **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:**
At present there are no ecotoxicological assessments.
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.
According to the criteria of the EU-classification and labelling "dangerous for environment"(1999/45/EG) the substance/ the product has to be classified as non-hazardous for the environment.
The product does not contain organically bounded halogens (AOX-free).

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**

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

14 Transport information

- **Land transport ADR/RID (cross-border)**



- **ADR/RID-GGVS/E Class:** 8 Corrosive substances.
- **Kemler Number:** 80

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Trade name: Duomat Fixer part B

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- **UN-Number:** UN 3264
- **Packaging group:** III
- **Label** 8
- **Designation of goods:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID)
- **Remarks:** "Limited quantity" according to chapter 3.4 ADR

Maritime transport IMDG:


- **IMDG Class:** 8
- **UN Number:** UN 3264
- **Label** 8
- **Packaging group:** III
- **EMS Number:** F-A,S-B
- **Marine pollutant:** No
- **Correct technical name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID)
- **Remarks:** "Limited quantity" according to chapter 3.4 IMDG

Air transport ICAO-TI and IATA-DGR:


- **ICAO/IATA Class:** 8
- **UN/ID Number:** UN 3264
- **Label** 8
- **Packaging group:** III
- **Correct technical name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID)
- **Remarks:** Packing Instruction
PAX 818, CAO 820

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:


Xi Irritant

- **Risk phrases:**
36/38 Irritating to eyes and skin.
- **Safety phrases:**
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

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Trade name: Duromat Fixer part B

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- **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.

- **Relevant R-phrases**

35 Causes severe burns.

38 Irritating to skin.

41 Risk of serious damage to eyes.

- **Recommended restriction of use** No public product, only for commercial use

- **Sources**

applicable EEC directives:

- 1999/45/EC last change 2006/8/EC

- 67/548/EC last change 2004/73/EC (29. ATP)

Internal physical tests, MSDS of the ingredients

- * **Data compared to the previous version altered.**

GB