



**Safety data sheet  
according to 1907/2006/EC, Article 31**

Printing date 11.05.2015

Version 7

Revision: 11.05.2015

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name: Dental Film Developer Concentrate****Article number:** 00045, 00047, 00048**1.2 Relevant identified uses of the substance or mixture and uses advised against**

To this day we do not have any information about the identified use at the moment. These data are available we will add these to the safety data sheet.

**Application of the substance / the mixture**

Photochemicals  
Developer for X-ray films  
Reserved for industrial and professional use.

**1.3 Details of the supplier of the safety data sheet****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  
E-Mail: kr@calbe-chemie.de

**1.4 Emergency telephone number:** Tel.: 0700-24112112 (CAL)**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

Skin Irrit. 2      H315 Causes skin irritation.  
Eye Dam. 1      H318 Causes serious eye damage.  
Skin Sens. 1      H317 May cause an allergic skin reaction.  
Muta. 2            H341 Suspected of causing genetic defects.  
Carc. 2            H351 Suspected of causing cancer.  
Aquatic Acute 1 H400 Very toxic to aquatic life.

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

Xn; Harmful

R40-68: Limited evidence of a carcinogenic effect. Possible risk of irreversible effects.

Xi; Irritant

R36/38: Irritating to eyes and skin.

Xi; Sensitising

R43: May cause sensitisation by skin contact.

N; Dangerous for the environment

R50: Very toxic to aquatic organisms.

**Information concerning particular hazards for human 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.

**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.

(Contd. on page 2)

## Safety data sheet according to 1907/2006/EC, Article 31

Printing date 11.05.2015

Version 7

Revision: 11.05.2015

**Trade name: Dental Film Developer Concentrate**

(Contd. of page 1)

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**  
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**





GHS05 GHS07 GHS08 GHS09

- **Signal word** Danger
- **Hazard-determining components of labelling:**  
1,4-dihydroxybenzene (hydroquinone)
- **Hazard statements**  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H317 May cause an allergic skin reaction.  
H341 Suspected of causing genetic defects.  
H351 Suspected of causing cancer.  
H400 Very toxic to aquatic life.
- **Precautionary statements**  
P280 Wear protective gloves / eye protection.  
P273 Avoid release to the environment.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER/doctor.  
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**
- **Description:** Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

CAS: 1330-43-4 EINECS: 215-540-4 Index number: 005-011-00-4 Reg.nr.: 01-2119490790-32-xxxx	disodium tetraborate, anhydrous  T Repr. Cat. 2 R60-61  Repr. 1B, H360FD	2.0-5.0%
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(Contd. on page 3)

## Safety data sheet according to 1907/2006/EC, Article 31

Printing date 11.05.2015

Version 7

Revision: 11.05.2015

**Trade name: Dental Film Developer Concentrate**

(Contd. of page 2)

CAS: 123-31-9 EINECS: 204-617-8 Index number: 604-005-00-4 Reg.nr.: 01-2119524016-51-xxxx	1,4-dihydroxybenzene (hydroquinone) Xn R22-40-68 Xi R41 Xi R43 N R50 Carc. Cat. 3, Muta. Cat. 3 Muta. 2, H341; Carc. 2, H351 Eye Dam. 1, H318 Aquatic Acute 1, H400 Acute Tox. 4, H302; Skin Sens. 1, H317	2.0-5.0%
CAS: 1310-58-3 EINECS: 215-181-3 Index number: 019-002-00-8 Reg.nr.: 01-2119487136-33-xxxx	potassium hydroxide C R35 Xn R22 Met. Corr.1, H290; Skin Corr. 1A, H314 Acute Tox. 4, H302	0.5-2.0%
CAS: 13047-13-7 EINECS: 235-920-3	4-(hydroxymethyl)-4-methyl-1-phenylpyrazolidin-3-one Xn R22 Xi R43 N R51/53 Aquatic Chronic 2, H411 Acute Tox. 4, H302; Skin Sens. 1, H317	< 0.5%

**SVHC**

1330-43-4 disodium tetraborate, anhydrous

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

### SECTION 4: First aid measures

**4.1 Description of first aid measures**
**General information**

Personal protection for the First Aider.  
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 (at least 15 minutes).  
Remove contact lenses, if present and easy to do.  
Use eye protection.  
Call a doctor immediately.

**After swallowing**

Rinse out mouth and then drink plenty of water.  
Do not induce vomiting; instantly call for medical help.

**4.2 Most important symptoms and effects, both acute and delayed**

No known symptoms to date.

**4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

### SECTION 5: Firefighting measures

**5.1 Extinguishing media**
**Suitable extinguishing agents**

CO<sub>2</sub>, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

(Contd. on page 4)



## Safety data sheet according to 1907/2006/EC, Article 31

Printing date 11.05.2015

Version 7

Revision: 11.05.2015

**Trade name: Dental Film Developer Concentrate**

(Contd. of page 3)

Use fire fighting measures that suit the environment.

- **For safety reasons unsuitable extinguishing agents** Water with a full water jet.
- **5.2 Special hazards arising from the substance or mixture**  
Can be released in case of fire  
Sulphur oxides (SO<sub>x</sub>)  
Carbon monoxide
- **5.3 Advice for firefighters**
- **Protective equipment:**  
Do not inhale explosion gases or combustion gases.  
At formation of toxic gases:  
Put on breathing apparatus.
- **Additional information** The product is not flammable

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.
- **6.2 Environmental precautions:** Do not allow to enter drainage system, surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose of contaminated material as waste according to item 13.
- **6.4 Reference to other sections**  
See Section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**  
Do not handle until all safety precautions have been read and understood.
- **Information about protection against explosions and fires:**  
No special measures required.  
The product is not flammable
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:**  
Store only in unopened original containers.  
Keep container tightly closed in a cool, well-ventilated place.
- **Information about storage in one common storage facility:**  
Keep away from foodstuffs, beverages and food.  
Do not store together with acids.  
Store away from oxidising agents.
- **Further information about storage conditions:**  
Protect from heat and direct sunlight.  
Store in a cool place.
- **Recommended storage temperature:** 5-25 °C
- **Storage class**  
LGK 12  
(German Technical Rule for Hazardous Substance – TRGS 510)
- **7.3 Specific end use(s)** No further relevant information available.

GB

(Contd. on page 5)



**Safety data sheet**  
**according to 1907/2006/EC, Article 31**

Printing date 11.05.2015

Version 7

Revision: 11.05.2015

Trade name: Dental Film Developer Concentrate

(Contd. of page 4)

### SECTION 8: Exposure controls/personal protection

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

· **8.1 Control parameters**

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

**1330-43-4 disodium tetraborate, anhydrous**

WEL Long-term value: 1 mg/m<sup>3</sup>

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

WEL Long-term value: 0.5 mg/m<sup>3</sup>

**1310-58-3 potassium hydroxide**

WEL Short-term value: 2 mg/m<sup>3</sup>

· **Additional information:** The lists that were valid during the compilation were used as basis.

· **8.2 Exposure controls**

· **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 contaminated clothing before reuse.

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

Do not eat, drink or smoke while working.

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

Avoid natural rubber gloves.

· **As protection from splashes gloves made of the following materials are suitable:**

Synthetic gloves

Value for permeation: Level:

≥ 3 (60 min)

· **Eye protection:** Safety glasses

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

GB

(Contd. on page 6)

**Safety data sheet  
according to 1907/2006/EC, Article 31**

Printing date 11.05.2015

Version 7

Revision: 11.05.2015

**Trade name: Dental Film Developer Concentrate**

(Contd. of page 5)

**SECTION 9: Physical and chemical properties****· 9.1 Information on basic physical and chemical properties****· General Information****· Appearance:**

Form:	Fluid
Colour:	Colourless
Odour:	Not characteristic

**· pH-value at 25 °C:** 11.1**· 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.**· Critical values for explosion:****Oxidising properties** None**· Vapour pressure at 20 °C:** 23 hPa**· Density at 20 °C** 1.287 g/cm<sup>3</sup>**· Solubility in / Miscibility with****Water:** miscible**· Viscosity:****dynamic:** Not determined  
**kinematic:** Not determined**· Solvent content:****Organic solvents:** 0 %  
**Water:** ~ 65 %**· 9.2 Other information** No further relevant information available.**SECTION 10: Stability and reactivity****· 10.1 Reactivity****· 10.2 Chemical stability****· Thermal decomposition / conditions to be avoided:**

No decomposition if used according to specifications.

**· 10.3 Possibility of hazardous reactions**Reacts with strong acids  
Reacts with acids releasing sulphur dioxide**· 10.4 Conditions to avoid** No further relevant information available.**· 10.5 Incompatible materials:** No further relevant information available.**· 10.6 Hazardous decomposition products:** None

GB

(Contd. on page 7)

## Safety data sheet according to 1907/2006/EC, Article 31

Printing date 11.05.2015

Version 7

Revision: 11.05.2015

**Trade name: Dental Film Developer Concentrate**

(Contd. of page 6)

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Acute toxicity

##### LD/LC50 values that are relevant for classification:

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

Oral	LD50	320 mg/kg
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##### 1330-43-4 disodium tetraborate, anhydrous

Oral	LD50	4500 mg/kg (rat)
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##### 1310-58-3 potassium hydroxide

Oral	LD50	365 mg/kg (rat)
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##### 13047-13-7 4-(hydroxymethyl)-4-methyl-1-phenylpyrazolidin-3-one

Oral	LD50	565 mg/kg (rat)
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Dermal	LD50	> 2000 mg/kg (rat)
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##### Primary irritant effect:

• **Skin corrosion/irritation** Irritant to skin and mucous membranes.

• **Serious eye damage/irritation** Irritant effect.

• **Respiratory or skin sensitisation** Sensitization possible by skin contact.

##### Subacute to chronic toxicity:

Limited evidence of a carcinogenic effect.

Possible risk of irreversible effects.

##### Additional toxicological information:

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

Harmful

Irritant

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

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.

##### CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Limited evidence of a carcinogenic effect.

Possible risk of irreversible effects.

Muta. 2, Carc. 2

### SECTION 12: Ecological information

#### 12.1 Toxicity

##### Aquatic toxicity:

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

EC50/48 h	0.29 mg/l (Daphnia magna)
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IC50/72 h	0.335 mg/l (Selenastrum capricornutum)
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LC50/96 h	0.044 mg/l (Pimephales promelas)
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##### 1310-58-3 potassium hydroxide

LC50/96 h	80 mg/l (Gambusia affinis)
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##### 13047-13-7 4-(hydroxymethyl)-4-methyl-1-phenylpyrazolidin-3-one

LC50/96 h	1 - 10 mg/l (Pimephales promelas)
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#### 12.2 Persistence and degradability

Not determined

(Contd. on page 8)



**Safety data sheet**  
**according to 1907/2006/EC, Article 31**

Printing date 11.05.2015

Version 7

Revision: 11.05.2015

**Trade name: Dental Film Developer Concentrate**

(Contd. of page 7)

- **12.3 Bioaccumulative potential** Not determined
- **Behaviour in environmental systems:** Not determined
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Behaviour in sewage processing plants:** Not determined
- **Additional ecological information:**
- **General notes:**  
 Water hazard class 3 (German Regulation) (Self-assessment): highly water-endangering.  
 Do not allow product to reach ground water, water bodies or sewage system.  
 At present there are no ecotoxicological assessments.  
 This statement was deduced from the properties of the single components.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **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.

### SECTION 14: Transport information

- |                                       |  |
|---------------------------------------|--|
| · <b>14.1 UN-Number</b>               |  |
| · <b>ADR, IMDG, IATA</b>              | UN 3082  |
| · <b>14.2 UN proper shipping name</b> |  |
| · <b>ADR</b>                          | ENVIRONMENTALLY HAZARDOUS<br>SUBSTANCE, LIQUID, N.O.S. (1,4-<br>dihydroxybenzene (hydroquinone)) |
| · <b>IMDG, IATA</b>                   | ENVIRONMENTALLY HAZARDOUS<br>SUBSTANCE, LIQUID, N.O.S. (hydroquinone)                            |

(Contd. on page 9)

GB



## Safety data sheet according to 1907/2006/EC, Article 31

Printing date 11.05.2015

Version 7

Revision: 11.05.2015

**Trade name: Dental Film Developer Concentrate**

(Contd. of page 8)

**· 14.3 Transport hazard class(es)**
**· ADR, IMDG, IATA**


<b>· Class</b>	9 Miscellaneous dangerous substances and articles.
<b>· Label</b>	9

**· 14.4 Packing group**

<b>· ADR, IMDG, IATA</b>	III
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**· 14.5 Environmental hazards:**

<b>· Marine pollutant:</b>	Symbol (fish and tree)
<b>· Special marking (ADR):</b>	Symbol (fish and tree)
<b>· Special marking (IATA):</b>	Symbol (fish and tree)

<b>· 14.6 Special precautions for user</b>	Warning: Miscellaneous dangerous substances and articles.
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**· 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

**· Transport/Additional information:**

These substances when transported in single or combination packagings containing a net quantity per single or inner packaging of 5 l or less for liquids or having a net mass of 5 kg or less for solids, are not subject to any other provisions of these Regulations provided the packagings meet the general.

See the following notes.

<b>· ADR</b>	Goods are not subject to the provisions in accordance with the special provision 375 ADR.
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<b>· IMDG</b>	Goods are not subject to the provisions in accordance with 2.10.2.7 IMDG-Code.
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<b>· IATA</b>	Goods are not subject to the provisions in accordance with the special provision 197 IATA-DGR.
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<b>· UN "Model Regulation":</b>	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,4-dihydroxybenzene (hydroquinone)), 9, III
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### SECTION 15: Regulatory information

**· 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
**· Directive 2012/18/EU**
**· Named dangerous substances - ANNEX I** None of the ingredients is listed.

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

Employment restrictions concerning pregnant and lactating women must be observed.

(Contd. on page 10)

## Safety data sheet according to 1907/2006/EC, Article 31

Printing date 11.05.2015

Version 7

Revision: 11.05.2015

**Trade name: Dental Film Developer Concentrate**

(Contd. of page 9)

Class	Share in %
I	3.9

- **Water hazard class:** Water danger class 3 (Self-assessment): highly water-endangering.
- **Other regulations, limitations and prohibitive regulations**

· <b>Substances of very high concern (SVHC) according to REACH, Article 57</b>
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1330-43-4   disodium tetraborate, anhydrous
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- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### SECTION 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 phrases**

H290 May be corrosive to metals.  
 H302 Harmful if swallowed.  
 H314 Causes severe skin burns and eye damage.  
 H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.  
 H341 Suspected of causing genetic defects.  
 H351 Suspected of causing cancer.  
 H360FD May damage fertility. May damage the unborn child.  
 H400 Very toxic to aquatic life.  
 H411 Toxic to aquatic life with long lasting effects.

R22 Harmful if swallowed.  
 R35 Causes severe burns.  
 R40 Limited evidence of a carcinogenic effect.  
 R41 Risk of serious damage to eyes.  
 R43 May cause sensitisation by skin contact.  
 R50 Very toxic to aquatic organisms.  
 R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
 R60 May impair fertility.  
 R61 May cause harm to the unborn child.  
 R68 Possible risk of irreversible effects.

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

- **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
 ICAO: International Civil Aviation Organisation  
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 IMDG: International Maritime Code for Dangerous Goods  
 IATA: International Air Transport Association  
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 Met. Corr. 1: Corrosive to metals, Hazard Category 1  
 Acute Tox. 4: Acute toxicity, Hazard Category 4  
 Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A  
 Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2  
 Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1  
 Skin Sens. 1: Sensitisation - Skin, Hazard Category 1  
 Muta. 2: Germ cell mutagenicity, Hazard Category 2  
 Carc. 2: Carcinogenicity, Hazard Category 2  
 Repr. 1B: Reproductive toxicity, Hazard Category 1B

(Contd. on page 11)



**Safety data sheet  
according to 1907/2006/EC, Article 31**

Printing date 11.05.2015

Version 7

Revision: 11.05.2015

**Trade name: Dental Film Developer Concentrate**

(Contd. of page 10)

Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1  
Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2

**· Sources**

applicable EEC directives:

- 1907/2006
- 1272/2008

Internal physical tests, MSDS of the ingredients,  
Information system on hazardous substances of the German Social Accident Insurance  
(GESTIS-database on hazardous substances), <http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp>

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

GB



**Safety data sheet  
according to 1907/2006/EC, Article 31**

Printing date 11.05.2015

Version 9

Revision: 11.05.2015

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

- **1.1 Product identifier**
- **Trade name: Dental Film Fixer Concentrate**

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- **Article number:** 00045, 00088, 00089
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
To this day we do not have any information about the identified use at the moment. These data are available we will add these to the safety data sheet.
- **Application of the substance / the mixture**  
Photochemicals  
Fixing agent for X-ray films  
Reserved for industrial and professional use.
- **1.3 Details of the supplier of the safety data sheet**
- **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  
E-Mail: kr@calbe-chemie.de
- **1.4 Emergency telephone number:** Tel.: 0700-24112112 (CAL)

**SECTION 2: Hazards identification**

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**  
The product is not classified according to the CLP regulation.

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- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **Information concerning particular hazards for human 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.

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- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Additional information:**  
Safety data sheet available on request.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

GB

(Contd. on page 2)

## Safety data sheet according to 1907/2006/EC, Article 31

Printing date 11.05.2015

Version 9

Revision: 11.05.2015

**Trade name: Dental Film Fixer Concentrate**

(Contd. of page 1)

### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

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

#### Dangerous components:

CAS: 7681-57-4 EINECS: 231-673-0 Index number: 016-063-00-2 Reg.nr.: 01-2119531326-45-xxxx	disodium disulphite Xn R22 Xi R41 R31 Eye Dam. 1, H318 Acute Tox. 4, H302	2.0-5.0%
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**Additional information** For the wording of the listed risk phrases refer to section 16.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

##### General information

Personal protection for the First Aider.  
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.

#### 4.2 Most important symptoms and effects, both acute and delayed

No known symptoms to date.

#### 4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing agents

CO<sub>2</sub>, 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.

#### 5.2 Special hazards arising from the substance or mixture

Can be released in case of fire  
sulphur dioxide (SO<sub>2</sub>)  
Nitrogen oxides (NO<sub>x</sub>)

#### 5.3 Advice for firefighters

##### Protective equipment:

Do not inhale explosion gases or combustion gases.  
Put on breathing apparatus.

(Contd. on page 3)



## Safety data sheet according to 1907/2006/EC, Article 31

Printing date 11.05.2015

Version 9

Revision: 11.05.2015

**Trade name: Dental Film Fixer Concentrate**

(Contd. of page 2)

- **Additional information** The product is not flammable

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
- **6.2 Environmental precautions:** Do not allow to enter drainage system, surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose of contaminated material as waste according to item 13.
- **6.4 Reference to other sections**  
See Section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:**  
No special measures required.  
The product is not flammable
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:**  
Keep away from foodstuffs, beverages and food.
- **Further information about storage conditions:** Store in a cool place.
- **Recommended storage temperature:** 5-25 °C
- **Storage class**  
LGK 12  
(German Technical Rule for Hazardous Substance – TRGS 510)
- **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

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

- **8.1 Control parameters**

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

<b>7681-57-4 disodium disulphite</b>
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WEL	Long-term value: 5 mg/m <sup>3</sup>
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- **Additional information:** The lists that were valid during the compilation were used as basis.
- **8.2 Exposure controls**
- **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

(Contd. on page 4)

**Safety data sheet  
according to 1907/2006/EC, Article 31**

Printing date 11.05.2015

Version 9

Revision: 11.05.2015

**Trade name: Dental Film Fixer Concentrate**

(Contd. of page 3)

- **Material of gloves**  
Synthetic gloves  
Avoid natural rubber gloves.
- **Penetration time of glove material**  
Value for permeation: Level  $\leq 6$  (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:  
 $\geq 3$  (60 min)
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

**SECTION 9: Physical and chemical properties**· **9.1 Information on basic physical and chemical properties**· **General Information**· **Appearance:**

· <b>Form:</b>	Fluid
· <b>Colour:</b>	Colourless
· <b>Odour:</b>	Nearly odourless

· **pH-value at 25 °C:** 5.3· **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** 1.29 g/cm<sup>3</sup>· **Solubility in / Miscibility with**· **Water:** miscible· **Viscosity:**

· **dynamic:** Not determined  
· **kinematic:** Not determined

· **Solvent content:**

· **Organic solvents:** 0 %  
· **Water:** ~ 50 %

· **9.2 Other information** No further relevant information available.

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(Contd. on page 5)



**Safety data sheet  
according to 1907/2006/EC, Article 31**

Printing date 11.05.2015

Version 9

Revision: 11.05.2015

Trade name: Dental Film Fixer Concentrate

(Contd. of page 4)

### SECTION 10: Stability and reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions**  
Reacts with strong acids and alkali  
Reacts with acids releasing sulphur dioxide  
Reacts with alkalis releasing ammonia
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:**  
Sulphur dioxide  
Ammonia

### SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity**

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

#### 7681-57-4 disodium disulphite

Oral	LD50	3200 mg/kg (rat)
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#### 64-19-7 acetic acid

Oral	LD50	3310 mg/kg (rat)
Dermal	LD50	1060 mg/kg (rabbit)

#### 7783-18-8 ammonium thiosulphate

Oral	LD50	1098 mg/kg (gpg)
		2890 mg/kg (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation** No irritant effect.
- **Serious eye damage/irritation** Irritant effect.
- **Respiratory or skin sensitisation** 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.

### SECTION 12: Ecological information

- **12.1 Toxicity**

- **Aquatic toxicity:**

#### 7681-57-4 disodium disulphite

EC50/48 h	89 mg/l (Daphnia magna)
LC50/96 h	32 mg/l (Lepomis macrochirus)

#### 64-19-7 acetic acid

LC50/96 h	75 mg/l (Lepomis macrochirus)
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- **12.2 Persistence and degradability** Not determined

(Contd. on page 6)





**Safety data sheet  
according to 1907/2006/EC, Article 31**

Printing date 11.05.2015

Version 9

Revision: 11.05.2015

**Trade name: Dental Film Fixer Concentrate**

(Contd. of page 5)

- **12.3 Bioaccumulative potential** Not determined
- **Behaviour in environmental systems:** Not determined
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxic effects:** No further relevant information available.
- **Behaviour in sewage processing plants:** Not determined
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (German Regulation) (Self-assessment): Weakly water-endangering.  
The product does not contain organically bounded halogens (AOX-free).  
At present there are no ecotoxicological assessments.  
This statement was deduced from the properties of the single components.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **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 04*	fixer 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.

### SECTION 14: Transport information

- |   |                 |
|---|-----------------|
| · <b>14.1 UN-Number</b><br>· <b>ADR, ADN, IMDG, IATA</b>                                    | Void            |
| · <b>14.2 UN proper shipping name</b><br>· <b>ADR</b><br>· <b>ADN, IMDG, IATA</b>           | Void<br>Void    |
| · <b>14.3 Transport hazard class(es)</b><br>· <b>ADR, ADN, IMDG, IATA</b><br>· <b>Class</b> | Void            |
| · <b>14.4 Packing group</b><br>· <b>ADR, IMDG, IATA</b>                                     | Void            |
| · <b>14.5 Environmental hazards:</b>  | Not applicable. |

(Contd. on page 7)

**Safety data sheet  
according to 1907/2006/EC, Article 31**

Printing date 11.05.2015

Version 9

Revision: 11.05.2015

**Trade name: Dental Film Fixer Concentrate**

(Contd. of page 6)

- |   |  |
|---|--|
| · <b>14.6 Special precautions for user</b>  | Not applicable.                                      |
| · <b>14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable.                                      |
| · <b>Transport/Additional information:</b>  | Not dangerous according to the above specifications. |
| · <b>UN "Model Regulation":</b>   | -  |

**SECTION 15: Regulatory information**

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

- **Directive 2012/18/EU**

- **Named dangerous substances - ANNEX I** None of the ingredients is listed.

- **National regulations**

Class	Share in %
II	0.9

- **Water hazard class:** Water hazard class 1 (Self-assessment): weakly water-endangering.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**SECTION 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 phrases**

H302 Harmful if swallowed.

H318 Causes serious eye damage.

R22 Harmful if swallowed.

R31 Contact with acids liberates toxic gas.

R41 Risk of serious damage to eyes.

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

- **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

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

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Acute Tox. 4: Acute toxicity, Hazard Category 4

Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

- **Sources**

applicable EEC directives:

- 1907/2006

- 1272/2008

(Contd. on page 8)



**Safety data sheet**  
**according to 1907/2006/EC, Article 31**

Printing date 11.05.2015

Version 9

Revision: 11.05.2015

**Trade name: Dental Film Fixer Concentrate**

(Contd. of page 7)

Internal physical tests, MSDS of the ingredients,  
Information system on hazardous substances of the German Social Accident Insurance  
(GESTIS-database on hazardous substances), <http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp>

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

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