

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

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

1.1 Identification of the substance or mixture:

Product name : ACD
Additional identification : Agfa Concentrate Developer, Image Master Developer
REACH Registration No : Registration numbers of the individual components: see section 3.2, if applicable.

1.2 Use of the substance/mixture:

Identified relevant uses : Photographic developer concentrate
Uses advised against : Only for professional use. Do not use for products which come into direct contact with the skin. Do not use for products which come into direct contact with food stuffs.

1.3 Company/undertaking identification

Agfa-Gevaert Ltd.
Vantage West
Great West Road
Brentford, Middlesex TW8 9AX
United Kingdom
Tel. : +44 (0)20 8 231 4616
Fax : +44 (0)20 8 231 4951
Person responsible for the safety data sheet: Jos Vanholzaets
E-mail: electronic.sds@agfa.com

1.4 Emergency telephone

Emergency telephone number (Belgium) : +32 3 4443333 (24h/24h)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

Regulation(EC) No 1272/2008 (CLP)	
• Hazard classes	Skin irritation
Hazard categories	Category 2
Hazard statements	H315
Classification procedure	According the classification criteria of CLP Regulation (EC) No 1272/2008.
• Hazard classes	Serious eye damage
Hazard categories	Category 1
Hazard statements	H318
Classification procedure	According the classification criteria of CLP Regulation (EC) No 1272/2008.
• Hazard classes	Carcinogenicity
Hazard categories	Category 2
Hazard statements	H351
Classification procedure	According the classification criteria of CLP Regulation (EC) No 1272/2008.
• Hazard classes	Skin sensitizer
Hazard categories	Category 1
Hazard statements	H317

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

Classification procedure	According to the classification criteria of CLP Regulation (EC) No 1272/2008.
• Hazard classes	Germ cell mutagenicity
Hazard categories	Category 2
Hazard statements	H341
Classification procedure	According to the classification criteria of CLP Regulation (EC) No 1272/2008.

67/548/EEC or 1999/45/EC

Hazards characteristics	Harmful
R-phrases(s)	R36, R40, R43, R68

Full text of each relevant R and H phrase is listed in section 16.

2.2 Label elements:

Hazardous components which must be listed on the label :

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

Symbol(s)



GHS05



GHS08



GHS07

Signal word	: DANGER	
Hazard statements	: H315	Causes skin irritation.
	H317	May cause an allergic skin reaction.
	H318	Causes serious eye damage.
	H341	Suspected of causing genetic defects.
	H351	Suspected of causing cancer.
Precautionary statements: prevention	: P201	Obtain special instructions before use.
	P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
	P280	Wear protective gloves/protective clothing/eye protection/face protection.
Precautionary statements: response	: P281	Use personal protective equipment as required.
	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to remove. Continue rinsing.
	P308+P313	IF exposed or concerned: Get medical advice/attention.
	P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
	P363	Wash contaminated clothing before reuse.

2.3 Other hazards:

This product does not meet the criteria concerning PBT or vPvB substances as described in Annex XIII of the REACH regulation (1907/2006 EC)

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixture related information:

Aqueous photographic developer concentrate, mainly consisting of:

3.2 Hazard ingredients:

The hazard and labelling information in this section is that of the individual ingredients. The corresponding information relative to this product as supplied is given in section 2.1.

Hazardous components in the meaning of regulation(EC) No 1272/2008 (CLP)

- Potassium carbonate Concentration [%] : 5.0 - 10.0
CAS-No. : 584-08-7
EINECS-No. : 209-529-3
REACH Registration No : 01-2119532646-36
Hazard classes : Serious eye irritation, Skin irritation, Specific target organ toxicity - single exposure
Hazard categories : Category 2, Category 2, Category 3
Hazard statements : H319, H315, H335
- Hydroquinone Concentration [%] : 1.0 - 5.0
CAS-No. : 123-31-9
Index-No. : 604-005-00-4
EINECS-No. : 204-617-8
REACH Registration No : 01-2119524016-51-0002
Hazard classes : Carcinogenicity, Germ cell mutagenicity, Acute toxicity Oral, Serious eye damage, Skin sensitizer, Acute hazards to the aquatic environment
Hazard categories : Category 2, Category 2, Category 4, Category 1, Category 1, Category 1
Hazard statements : H351, H341, H302, H318, H317, H400
- Diethylene glycol Concentration [%] : 0.5 - 1.0
CAS-No. : 111-46-6
Index-No. : 603-140-00-6
EINECS-No. : 203-872-2
REACH Registration No : 01-2119457857-21-XXXX
Hazard classes : Acute toxicity Oral
Hazard categories : Category 4
Hazard statements : H302
- Sodium hydroxide Concentration [%] : 0.1 - 0.5
CAS-No. : 1310-73-2
Index-No. : 011-002-00-6
EINECS-No. : 215-185-5
REACH Registration No : 01-2119457892-27-XXXX
Hazard classes : Skin corrosion, Serious eye damage, Corrosive to metals.
Hazard categories : Category 1A, Category 1, Category 1
Hazard statements : H314, H318, H290

Hazardous components in the meaning of 67/548/EEC or 1999/45/EC

- Potassium carbonate Concentration [%] : 5.0 - 10.0
CAS-No. : 584-08-7
EINECS-No. : 209-529-3
Symbol(s) : Xi
R-phrases) : R36/37/38
- Hydroquinone Concentration [%] : 1.0 - 5.0

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

CAS-No.	:	123-31-9		
Index-No.	:	604-005-00-4		
EINECS-No.	:	204-617-8		
Symbol(s)	:	Xn, N		
R-phrases)	:	R22, R40, R41, R43, R68, R50		
• Diethylene glycol			Concentration [%] :	0.5 - 1.0
CAS-No.	:	111-46-6		
Index-No.	:	603-140-00-6		
EINECS-No.	:	203-872-2		
Symbol(s)	:	Xn		
R-phrases)	:	R22		
• Sodium hydroxide			Concentration [%] :	0.1 - 0.5
CAS-No.	:	1310-73-2		
Index-No.	:	011-002-00-6		
EINECS-No.	:	215-185-5		
Symbol(s)	:	C		
R-phrases(s)	:	R35		

Components with a community workplace exposure limit

- Hydroquinone
- Diethylene glycol
- Sodium hydroxide

M-factor

- Hydroquinone
Acute hazards to the aquatic environment : 10

3.3 Remark:

Full text of each relevant R and H phrase is listed in section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures:

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

4.2 Most important symptoms and effects:

Symptoms	:	In normal conditions of use, no adverse effects are expected. If inhaled or ingestion: irritation. In case of eye contact: redness and pain. Upon contact with skin: redness, pain. Repeated contact may cause allergic reactions in very susceptible persons.
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4.3 Indication of immediate medical attention and special treatment needed:

General advice	:	Call a physician immediately.
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SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

- Suitable extinguishing media : Alcohol-resistant foam., Carbon dioxide (CO₂)., Dry extinguishing powder., Water.
- Extinguishing media which must not be used for safety reasons : Do not use a solid water stream as it may scatter and spread fire.

5.2 Special hazards arising from the substance or mixture:

- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Product is not combustible.

5.3 Advice for fire-fighters:

- Special protective equipment for fire-fighters : Regular fire intervention clothes. not required under normal use

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

- Personal precautions : Cleanup personnel must use appropriate personal protective equipment.
- Additional advice : Observe normal precautions when handling chemicals.

6.2 Environmental precautions:

- Environmental precautions : The product should not be allowed to enter drains, water courses or the soil.

6.3 Methods and material for containment and cleaning up:

- Methods for cleaning up : Dike the spill if necessary. If spill occurs, apply a suitable absorbent material and collect into an impervious waste container. Collect the product in a plastic vessel. Carefully collect leftovers.

6.4 Reference to other sections:

- For waste disposal see section 13.
For personal protection see section 8.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling:

- Advice on safe handling : Prevent product from diffusing.
- Hygiene measures : Observe normal precautions when handling chemicals. Keep away from foodstuffs, drinks and tobacco. Employees should wash their hands and face before eating, drinking, or using tobacco products.
- Advice on protection against fire and explosion : Non-combustible (aqueous solution). No special protective measures against fire and explosion required.

7.2 Conditions for safe storage:

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

- Requirements for storage areas and containers : Keep container tightly closed.Keep in a dry place.
- Further information on storage conditions : Keep container in a well-ventilated place.
- Advice on common storage : Store away from strong acids and strong oxidizing agents (e.g. sodium hypochlorite).

7.3 Specific end use:

This substance is used only by trained professionals under restricted conditions.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

8.1.1 Components with occupational exposure limits resp. biological occupational exposure limits requiring monitoring:

8.1.1.1 Occupational exposure limits:

Air limit values

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

Basis	Revision Date	Value	Type
EH40 WEL	2005	0.5 mg/m3	TWA

- Diethylene glycol CAS-No.: 111-46-6

Basis	Revision Date	Value	Type
EH40 WEL	2005	101 mg/m3	TWA

- Sodium hydroxide CAS-No.: 1310-73-2

Basis	Revision Date	Value	Type
EH40 WEL	2005	2 mg/m3	STEL

Biological limit values

We are not aware of any national exposure limit.

8.1.1.2 Additional exposure limits under the conditions of use:

No other exposure limits applicable.

8.1.1.3 DNEL/DMEL and PNEC-values:

DNEL

No Chemical Safety Report performed. No DNEL/DMEL value determined.

PNEC

No Chemical Safety Report performed. No PNEC value determined.

8.2 Exposure controls:

Occupational exposure controls:

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

➤ Instructual measures to prevent exposure:

Employees should wash their hands and face before eating, drinking, or using tobacco products. Keep away from foodstuffs, drinks and tobacco.

➤ Technical measures to prevent exposure:

Ensure adequate ventilation.

➤ Personal measures to prevent exposure:

- Respiratory protection : not required under normal use
- Hand protection : Use chemical resistant gloves. In case of prolonged immersion or frequently repeated contact use gloves made of the materials: butylrubber (thickness ≥ 0.70 mm, breakthrough time > 480 min).(EN 374). The use of protective gloves should conform to the specifications of EC directive 89/686/EC and the resultant standard EN374, for example KCL 898 Butoject (full contact), KCL 890 Vito Ject (splash contact).
Additional advice: The data are based on own tests, literature data and information of glove manufacturers or derived from similar substances. Because several factors may influence these properties(eg temperature), one should take into account the fact that the life of a chemical gloves in practice may be considerably shorter than indicated by the permeation test. The high diversity of types of use are prescribed by the manufacturer.
- Eye protection : Safety goggles. EN 166.
- Body Protection : Safety clothes.

Environmental exposure controls:

Do not release into drain. Collect for removal by a licensed waste contractor. Effluent regulations/discharge/treatment/contents may vary from one area to another. Please consult the local regulations regarding the disposal of this material.

EU Directive	Status
European Directive 2000/60/EC (water)	not on list
European Directive 1996/62/EC (air)	not on list

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Basic physical and chemical properties:

9.1.1 Appearance:

- State of matter : Liquid
- Form : Liquid.
- Colour : Yellowish
- Odour : Nearly odourless
- Odour threshold : No data available

9.1.2 Important health, safety and environmental information:

- pH (25 °C) : 10.9 Method: Literature.
- Melting point/range : < 0 °C Method: Literature.
- Boiling point/range : > 100 °C Method: Literature.

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

Flash point	: > 100 °C	
	Not combustible.	
Autoignition temperature	: No data available	
Vapour pressure	: 23 hPa	Method: Literature.
Relative vapour density	: No data available	
Relative density (20 °C)	: 1.265	Method: Literature.
Density	: No data available	
Solubility/qualitative	: Miscible with water at all ratios.	
Water solubility	: No data available	
Partition coefficient (n-octanol/water)	: Not applicable	
Viscosity, dynamic	: No data available	
Viscosity, kinematic	: No data available	
Lower explosion limit	: No data available	
Upper explosion limit	: No data available	
Evaporation rate	: No data available	
Flammability (solid, gas)	: Not flammable.	Method: Literature.

9.2 Other information:

VOC content : Not applicable

10. STABILITY AND REACTIVITY

10.1 Reactivity:

Reactivity : Reactivity is not to be expected under normal conditions of temperature and pressure. Reacts with strong acids.

10.2 Chemical stability:

Stability : The product is stable under normal conditions of storage and use.

10.3 Possibility of hazardous reactions:

Hazardous reactions : Reacts with strong acids.

10.4 Conditions to avoid:

Conditions to avoid : Avoid contact with strong acids and strong oxidizing agents (e.g. sodiumhypochlorite). Remove all chemicals and rinse the processing tanks thoroughly with water before using any cleansing products.

10.5 Materials to avoid:

Materials to avoid : No data available

10.6 Hazardous decomposition products:

Hazardous decomposition products : Sulphur dioxide

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

Toxicity data specific for individual ingredients in their pure state:

Toxicokinetics, metabolism and distribution:

- Potassium carbonate

No data available

- Hydroquinone

Toxicokinetic studies with hydroquinone show that although it is readily absorbed from the gut of animals it has a low potential for bioaccumulation (< 2% distributed out of total administered dose). Extensive conjugation and rapid excretion, primarily via the urine, suggests that hydroquinone is effectively detoxified.

However, because hydroquinone is oxidized to p-benzoquinone and/or p-benzoquinone, which are able to readily react with nucleophilic body components, it represents a potentially harmful toxicant. Indeed, hydroquinone and/or its metabolites covalently bind to cellular components in vitro.

It is, therefore, possible that although the bioaccumulation potential of hydroquinone is low critical body components may still be adversely affected.

- Diethylene glycol

No data available

- Sodium hydroxide

No data available

Acute effects (toxicity tests):

➤ Acute Toxicity

- Potassium carbonate

	Effect dose	Species	Value	Method
Acute oral toxicity	LD50	rat	> 2,000 mg/kg	Literature. Based on available data, the classification criteria are not met.
Acute dermal toxicity	LD50	rabbit	2,000 mg/kg	Literature. Based on available data, the classification criteria are not met.
Acute inhalation toxicity				Literature. Irritating to respiratory system.

- Hydroquinone

	Effect dose	Species	Value	Method
Acute oral toxicity	LD50	rat	320 mg/kg	Literature.
Acute dermal toxicity	LD50	cat	5,970 mg/kg	Literature.
Acute inhalation toxicity				Based on available data, the classification criteria are not met. It was demonstrated that during intended and foreseen applications, no respirable aerosol is formed. Inhalation of airborne droplets may cause irritation of the respiratory tract.

- Diethylene glycol

	Effect dose	Species	Value	Method
Acute oral toxicity	LD50	rat	12,565 mg/kg	Literature.
Acute dermal toxicity	LD50	rabbit	11,890 mg/kg	Literature.
Acute inhalation toxicity	LC50	rat	4.6 mg/l/ 4 h	Based on available data, the classification criteria are not met. Literature.

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

- Sodium hydroxide

	Effect dose	Species	Value	Method
Acute oral toxicity	LDL0	rabbit	500 mg/kg	Literature.
Acute oral toxicity	LD50	rabbit	1,350 mg/kg	Literature.
Acute dermal toxicity	No data available			
Acute inhalation toxicity	No data available			

➤ Specific target organ toxicity (STOT):

- Potassium carbonate

Specific effects	Affected organs
May cause irritation of respiratory tract.	

- Hydroquinone

Specific effects	Affected organs
Product dust may be irritating to eyes, skin and respiratory system.	

- Diethylene glycol

Specific effects	Affected organs
	Kidney Central nervous system
Based on available data, the classification criteria are not met.	

- Sodium hydroxide

Specific effects	Affected organs
No data available	

➤ Irritant and corrosive effects:

- Potassium carbonate

	Exposure time	Species	Evaluation	Method
Primary irritation to the skin				Literature.
Irritation to eyes				Literature.
				Irritating to eyes.

- Hydroquinone

	Exposure time	Species	Evaluation	Method
Primary irritation to the skin			No skin irritation	Tested according to Annex V of Directive 67/548/EEC.
Irritation to eyes			Risk of serious damage to eyes.	Tested according to Annex V of Directive 67/548/EEC.
According to the classification criteria of the European Union, the product is not considered as being a skin irritant.				

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

- Diethylene glycol

	Exposure time	Species	Evaluation	Method
Primary irritation to the skin		rat	No skin irritation	Literature.
Irritation to eyes		rabbit	No eye irritation	Literature.

- Sodium hydroxide

	Exposure time	Species	Evaluation	Method
Primary irritation to the skin			Corrosive	Literature.
			Destruction of skin tissue as a result of more than 3 minutes exposure.	
Irritation to eyes			Corrosive	
			Acute eye irritation/corrosion	

➤ Irritation to the respiratory tract:

- Potassium carbonate
May cause irritation of respiratory tract.
- Hydroquinone
No data available
- Diethylene glycol
No data available
- Sodium hydroxide
May cause irritation of respiratory tract. Based on available data, the classification criteria are not met.

➤ Sensitisation:

- Potassium carbonate

Species	Evaluation	Method
	Did not cause sensitization on laboratory animals.	Literature.

- Hydroquinone

Species	Evaluation	Method
	May cause sensitisation by skin contact.	Tested according to Annex V of Directive 67/548/EEC.

- Diethylene glycol

Species	Evaluation	Method
guinea pig	Non-sensitizer	Literature.

- Sodium hydroxide

Species	Evaluation	Method
	Did not cause sensitization on laboratory animals.	Literature.

➤ Aspiration hazard:

- Potassium carbonate
No data available
- Hydroquinone
No data available

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

- Diethylene glycol

Based on available data, the classification criteria are not met.

- Sodium hydroxide

No data available

Sub-acute, sub-chronic and chronic toxicity

➤ Repeated dose toxicity:

No data available

➤ Specific target organ toxicity (STOT):

- Potassium carbonate

Based on available data, the classification criteria are not met.

- Hydroquinone

Skin contact can cause (damage skin and allergic reaction) eczema. Hydroquinone can affect the bone marrow and other blood-producing organs, resulting in reduction of red blood cells and blood dye concentrations. Discoloration of the skin may occur. There is evidence that hydroquinone is carcinogenic. May damage the genetic characteristics.

- Diethylene glycol

Repeated exposure	Specific effects	Affected organs
	Repeated or prolonged exposure: The substance can affect the liver, causing damage to the body. Does not meet the classification criteria of 3.9.2 of CLP-Regulation (EC) No 1272/2008.	Central nervous system Liver Kidney

- Sodium hydroxide

Repeated exposure	Specific effects	Affected organs
	Skin contact may be damaged by eczema. The dust may affect the upper and lower airways, causing inflammation and impaired lung function. Erosion of the teeth may occur.	

➤ CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):

- Carcinogenicity

- Potassium carbonate

Route of exposure	Species	Exposure time
	Method: Literature. No carcinogenic effects observed at the doses tested.	

- Hydroquinone

Formation of benign kidney tumors occurred only after nephropathy developed and only in one strain of male rat. Additional effects have been reported. Although an increase in leukemia was reported in the female F-344 rat, this result was not reproduced in a subsequent study. There was no evidence of cancer in male mice following chronic oral administration. Increases in primarily benign tumors were noted in female mice, although this finding was not reproduced in a subsequent study. No tumors were reported in mice following long-term dermal application.

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

- Diethylene glycol

No carcinogenic effects observed at the doses tested. Based on available data, the classification criteria are not met.

- Sodium hydroxide

No data available

- Mutagenicity

- Potassium carbonate

There is no evidence for mutagenicity from studies in animals.

- Hydroquinone

Studies using the 'Ames' test were generally negative. There is some evidence for mutagenicity from studies in animals, in isolated cells taken from animals and plants, and in other microorganisms.

- Diethylene glycol

The results of the mutagenicity tests (Ames and chromosome aberration test - metabolic activated and non-activated groups) showed that DNA reactive metabolites (formed during hepatoic biotransformation) are not to be expected.

- Sodium hydroxide

Based on available data, the classification criteria are not met.

- Genetic toxicity in vitro

- Potassium carbonate

Based on available data, the classification criteria are not met.

- Hydroquinone

Type	Test system	Concentration	Result
Ames test	Escherichia coli WP2 uvr A; Salmonella typhimurium TA98, TA100, TA535, TA1537 Method: Literature.		negative

- Diethylene glycol

Type	Test system	Concentration	Result
Chromosome aberration test in vitro	Chinese hamster lung cells Method: Literature. Based on available data, the classification criteria are not met.		negative
Ames test	Escherichia coli WP2 uvr A; Salmonella typhimurium TA98, TA100, TA535, TA1537 Method: Literature. Based on available data, the classification criteria are not met.		negative

- Sodium hydroxide

No data available

- Genetic toxicity in vivo

- Potassium carbonate

Based on available data, the classification criteria are not met.

- Hydroquinone

No data available

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

- Diethylene glycol

No data available

- Sodium hydroxide

No data available

- Teratogenicity

- Potassium carbonate

Based on available data, the classification criteria are not met.

- Hydroquinone

Has not caused birth defects when administered orally at dose levels not causing systemic toxicity in the mother.

- Diethylene glycol

Has not caused birth defects when administered orally at dose levels not causing systemic toxicity in the mother. Based on available data, the classification criteria are not met.

- Sodium hydroxide

No data available

- Toxicity to reproduction

- Potassium carbonate

Based on available data, the classification criteria are not met.

- Hydroquinone

Has not caused reproductive effects in male or female animals when administered orally at dose levels not causing systemic toxicity

- Diethylene glycol

Has not caused reproductive effects in male or female animals when administered orally at dose levels not causing systemic toxicity Based on available data, the classification criteria are not met.

- Sodium hydroxide

No data available

➤ Summarised evaluation of the CMR properties:

- Potassium carbonate

Carcinogenicity : Animal testing did not show any carcinogenic effects.
Mutagenicity : Did not show mutagenic effects in animal experiments.
Teratogenicity : Based on available data, the classification criteria are not met.
Toxicity to reproduction : Based on available data, the classification criteria are not met.

- Hydroquinone

Carcinogenicity : Considered as a suspected human carcinogen according to the American Conference of Industrial Hygienists (ACGIH).
Mutagenicity : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Teratogenicity : Did not show teratogenic effects in animal experiments.
Toxicity to reproduction : No toxicity to reproduction

- Diethylene glycol

Carcinogenicity : Animal testing did not show any carcinogenic effects.
Mutagenicity : Not mutagenic in AMES Test.
Teratogenicity : Animal testing did not show any effects on foetal development.
Toxicity to reproduction : Animal testing did not show any effects on fertility.No toxicity to reproduction

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

- Sodium hydroxide
- Carcinogenicity : No data available
Mutagenicity : Did not show mutagenic effects in animal experiments.
Teratogenicity : No data available
Toxicity to reproduction : No data available

Experiences made in practice:

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

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity:

	Effect dose	Exposure time	Species	Value
Toxicity to daphnia	EC50	48 h	Daphnia magna	100 mg/l
Method: OECD Test Guideline 202 The acute aquatic toxicity has been determined according a GLP study of the Daphnia immobility test OECD 202 (Test code DAC 12 002) on the mixture as a whole.				

12.2 Persistence and degradability:

Physico-chemical removability

The product evaporates slowly. Neutralization is normally necessary before waste water is discharged into water treatment plants.

Chemical Oxygen Demand (COD)

- Potassium carbonate
No data available
- Hydroquinone

Value	Method
> 1,830 mg/l	Literature.

- Diethylene glycol
No data available
- Sodium hydroxide
No data available

Adsorbed organic bound halogens (AOX)

Not applicable

Biodegradation

- Potassium carbonate
inorganic substances in powdered form
- Hydroquinone

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

Value	Exposure time	Method	Evaluation
> 80 %	28 d	OECD 301D Readily biodegradable	According to the results of tests of biodegradability this product is considered as being readily biodegradable.

- Diethylene glycol

Value	Exposure time	Method	Evaluation
		Literature.	Readily biodegradable.

- Sodium hydroxide

The methods for determining biodegradability are not applicable to inorganic substances.

Biochemical Oxygen Demand (BOD)

- Potassium carbonate

No data available

- Hydroquinone

Concentration	Incubation time	Value	Method
		> 480 mg/l	Literature.

- Diethylene glycol

No data available

- Sodium hydroxide

No data available

12.3 Bioaccumulative potential:

Partition coefficient (n-octanol/water)

Not applicable

Bioconcentration factor (BCF)

- Potassium carbonate

Does not bioaccumulate.

- Hydroquinone

Value	Species	Method
40		Literature. Bioaccumulation is unlikely. Accumulation in aquatic organisms is unlikely. Accumulation in terrestrial organisms is unlikely.

- Diethylene glycol

Value	Species	Method
0.05		Literature. Bioaccumulation is unlikely.

- Sodium hydroxide

Value	Species	Method
		Literature. Does not bioaccumulate.

12.4 Mobility in soil:

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

Soluble in water.

Henry's constant

Value	Temperature	Method
		No information available.

Transport between environmental compartments

Transport between environmental compartments can be expected.

12.5 Results of PBT and vPvB assessment:

This product does not meet the criteria concerning PBT or vPvB substances as described in Annex XIII of the REACH regulation (1907/2006 EC)

12.6 Other adverse effects:

This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. When properly applied, negative effects on the functionality of waste treatment plants are not expected. This substance is not classified as hazardous to the environment according to European Directives and corresponding national legislation.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

Waste disposal methods

Do not release into drain. Collect for removal by a licensed waste contractor. Effluent regulations/discharge/treatment/contents may vary from one area to another. Please consult the local regulations regarding the disposal of this material.

Empty containers.

As the packaging can be contaminated with product residus, please observe the warnings of the label even when the container is empty. Do not reuse empty container without proper cleaning. Label precautions also apply to this container when empty.

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

14. TRANSPORT INFORMATION

Not regulated according to ADR.

Not regulated according to ADN.

Not regulated according to RID.

Not regulated according to IMO/IMDG.

Not regulated according to ICAO/IATA aircraft only.

Not regulated according to ICAO/IATA passenger and cargo aircraft.

15. REGULATORY INFORMATION

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

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

Authorisation and/or restriction on use

Authorisation : No
Restriction on use : Not listed on EU. REACH, Annex XVII, Restrictions on manufacture, placing on the market and use of certain dangerous substances, mixtures & articles (Reg 1907/2006/EC, as amended)

Other EU regulations

Does not fall under specific EU-Regulations.

15.2 Chemical Safety Assessment

No Chemical Safety Report needed according REACH.

16. OTHER INFORMATION

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

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.

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

R22	Harmful if swallowed.
R35	Causes severe burns.
R36	Irritating to eyes.
R36/37/38	Irritating to eyes, respiratory system and skin.
R40	Limited evidence of a carcinogenic effect.
R41	Risk of serious damage to eyes.
R43	May cause sensitization by skin contact.
R50	Very toxic to aquatic organisms.
R68	Possible risk of irreversible effects.

Further information

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

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

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



ACD

SUBID : 000000009679

Version 6

Print Date 26.10.2013

Revision Date 29.04.2013

Sources of key data used to compile the datasheet

Handbuch der gefährlichen Güter, Hommel.

The Dictionary of Substances and their Effects, Royal Society of Chemistry.

Gefährliche Chemische Reaktionen, L.Roth und U.Weller.

Handbuch der Umweltgifte, Dauderer.

Chemiekaarten, latest version.

Safety Data Sheet from the supplier. This safety data sheet contains an ES (if applicable) in an integrated form.

Contents of the exposure scenario have been included (if applicable) into sections 1.2, 8, 9, 12, 15 and 16 of this safety data sheet. The downstream user has to check whether his uses are covered by the integrated ES information in this safety data sheet.

Abbreviations

ADR:	Accord européen relatif au transport international des marchandises Dangereuses par Route
ADNR:	Accord européen relatif au transport international des marchandises Dangereuses par la Rhin
AGW:	Arbeitsplatzgrenswerte (GE)
ATEmix:	Acute toxicity estimate of the mixture
CLP:	Classification, Labelling and Packaging of substances and mixtures
CMR:	Carcinoge
DNEL:	Derived No Effect Level
EC0:	Effective Concentration 0%
EC5:	Effective Concentration 5%
EC10:	Effective Concentration 10%
EC50:	Median Effective Concentration
EC100:	Effective Concentration 100%
EH40 WEL:	Workplace Exposure Limit (UK)
IATA:	International Air Transport Association
ICAO:	International Civil Aviation Organization
IC50:	inhibitory concentration 50%
IMDG:	International Maritime Dangerous Goods
IMO:	International Maritime Organization
IUCLID:	International Uniform Chemical Information Database
LC50:	Lethal Concentration 50%
LC100:	Lethal Concentration 100%
LOAEL:	Lowest Observed Adverse Effect Level
LDL0	Lethal Dose (minimum found to be lethal)
LD50:	Lethal Dose 50%
MAC:	Maximaal Aanvaardbare Concentratie (NL)
MAK:	Maximale Arbeitsplatz-Konzentration
NOAEL:	No Observed Adverse Effect Level
NOEL:	No Observed Effect Level
NOEC:	No Observed Effect Concentration
OEL:	Occupational Exposure Limit
PBT:	Persistent, Bioaccumulative and Toxic substance
PNEC:	Predicted No Effect Concentration
REACH:	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID:	Regulations concerning the International Transport of Dangerous Goods by Rail
STEL:	Short Term Exposure Limit
TLV:	Threshold Limit Value
TRGS900:	Arbeitsplatzgrenswerte (GE)
TWA:	Time Weighted Average

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH Annex II)



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SUBID : 000000009679

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VOC:

Volatile Organic Compound

vPvB:

very Persistent and very Bioaccumulative substance