

22.07.2013

Kit Components

Product code	Description
--------------	-------------

104000	ROENTOROLL CRE Part 1-3 for 2x20 Liter
---------------	---

Components:

104000 Part 1	Roentoroll CRE Röntgenentwickler Part 1
104000 Part 2	Roentoroll Part 2 Röntgenentwickler
104000 CRE	Roentoroll Part 3

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

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

- 1.1 Product identifier**
- Trade name:** Roentoroll CRE Part 1 Developer for X-ray films
- Article number:** 104000 Part 1, 44066 CRE
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- Application of the substance / the preparation** Developer for X-ray films
- 1.3 Details of the supplier of the safety data sheet**
- Manufacturer/Supplier:**
TETENAL Europe GmbH
Schützenwall 31-35
D-22844 Norderstedt / Germany
Phone: ++49 (0) 40 521 45-0; Fax: +49 (0) 40-52145-296
www.tetenal.com; E-Mail: info@tetenal.com
- TETENAL Ltd.,
2 Meridian West, Meridian Business Park, Leicester LE19 1WX
Phone: 0116 - 289 3644; E-Mail: uk@tetenal.com; www.tetenaluk.com
- Further information obtainable from:** Department environment and safety. E-Mail: info@tetenal.com
- 1.4 Emergency telephone number:** Poison Information Centre Berlin (Germany): +49 (0) 30 - 30686 790

SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture**
- Classification according to Regulation (EC) No 1272/2008**
- | | | |
|-----------------|------|---------------------------------------|
| Muta. 2 | H341 | Suspected of causing genetic defects. |
| Carc. 2 | H351 | Suspected of causing cancer. |
| Eye Dam. 1 | H318 | Causes serious eye damage. |
| Aquatic Acute 1 | H400 | Very toxic to aquatic life. |
| Skin Irrit. 2 | H315 | Causes skin irritation. |
| Skin Sens. 1 | H317 | May cause an allergic skin reaction. |
-
- 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
- R41-38: Risk of serious damage to eyes. Irritating to 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 according to the latest editions of the EU-lists, and extended by company and literature data.
-
- 2.2 Label elements**
- Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.

(Contd. on page 2)

EN

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

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll CRE Part 1 Developer for X-ray films

(Contd. of page 1)

. Hazard pictograms



GHS05 GHS07 GHS08 GHS09

. Signal word Danger

. Hazard-determining components of labelling:

hydroquinone (1,4-dihydroxybenzene)

. 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

- P264 Wash thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- 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 or doctor/physician.
- 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 Chemical characterization: Mixtures

. **Description:** Mixture of substances listed below with nonhazardous additions.

. Dangerous components:

CAS: 123-31-9 EINECS: 204-617-8 Index number: 604-005-00-4 Reg.nr.: 01-2119524016-51-xxxx	hydroquinone (1,4-dihydroxybenzene) ☒ 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	5-10%
CAS: 111-46-6 EINECS: 203-872-2 Index number: 603-140-00-6	diethylene glycol ☒ Xn R22 ☒ Acute Tox. 4, H302	1- <3%
CAS: 584-08-7 EINECS: 209-529-3 Reg.nr.: 01-2119532646-36-xxxx	potassium carbonate ☒ Xi R36/38 ☒ Skin Irrit. 2, H315; Eye Irrit. 2, H319	1- <2%

(Contd. on page 3)

Safety data sheet






according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll CRE Part 1 Developer for X-ray films

		(Contd. of page 2)
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	1- <2%
CAS: 10117-38-1 EINECS: 233-321-1 Reg.nr.: 01-2119537319-34-xxxx	potassium sulphite	5-10%
CAS: 7757-83-7 EINECS: 231-821-4 Reg.nr.: 01-2119537420-49-xxxx	sodium sulphite	5-10%
CAS: 7732-18-5 EINECS: 231-791-2	water	60-90%

. **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:** Immediately remove any clothing/shoes soiled by the product.
- . **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- . **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- . **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- . **After swallowing:** Drink plenty of water and provide fresh air. Call for a doctor immediately.
- . **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- . **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:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- . **5.2 Special hazards arising from the substance or mixture**
Nitrogen oxides (NO_x)
Carbon monoxide (CO)
Sulphur dioxide (SO₂)
Under certain fire conditions, traces of other toxic gases cannot be excluded.
- . **5.3 Advice for firefighters**
- . **Protective equipment:** Do not inhale explosion gases or combustion gases.

SECTION 6: Accidental release measures

- . **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Wear protective clothing.
- . **6.2 Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.
Do not allow to enter sewers/ 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).

(Contd. on page 4)

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

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll CRE Part 1 Developer for X-ray films

(Contd. of page 3)

Dispose contaminated material as waste according to item 13.
Pick up mechanically.

6.4 Reference to other sections

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- . **7.1 Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- . **Information about fire - and explosion protection:** Protect from heat.
- . **7.2 Conditions for safe storage, including any incompatibilities**
- . **Storage:**
- . **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- . **Information about storage in one common storage facility:**
Store away from foodstuffs.
Do not store together with acids.
Store away from oxidizing agents.
- . **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Store under lock and key and out of the reach of children.
Recommended storage temperature: 5-25 °C
Protect from exposure to the light.
- . **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

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

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

123-31-9 hydroquinone (1,4-dihydroxybenzene) (5-10%)

WEL (Great Britain)	Long-term value: 0.5 mg/m ³
PEL (USA)	Long-term value: 2 mg/m ³
REL (USA)	Short-term value: C 2* mg/m ³ *15-min
TLV (USA)	Long-term value: 1 mg/m ³ SEN

111-46-6 diethylene glycol (1- <3%)

WEL (Great Britain)	Long-term value: 101 mg/m ³ , 23 ppm
WEEL (USA)	Long-term value: 10 mg/m ³

1310-58-3 potassium hydroxide (1- <2%)

WEL (Great Britain)	Short-term value: 2 mg/m ³
REL (USA)	Long-term value: C2 mg/m ³
TLV (USA)	Short-term value: C 2 mg/m ³

- . **Additional information:** The lists valid during the making were used as basis.

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll CRE Part 1 Developer for X-ray films

(Contd. of page 4)

8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures:

The usual precautionary measures are to be adhered to when handling chemicals.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

Respiratory protection: Ensure adequate ventilation

Protection of hands:



Protective gloves

Impervious 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

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Butyl rubber, BR

Nitrile rubber, NBR

Neoprene gloves

Penetration time of glove material

Glove material	breakthroug-time	layer thickness
Butyl rubber:	≥ 480 min	≥0,4mm
nitrile:	≥480min	≥0,38mm
Neopren:	≥240min	≥0,65mm

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:



Tightly sealed goggles

Body protection: Protective work clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form: Fluid

Colour: Colourless

Odour: Recognizable

pH-value at 20 °C: 12

Change in condition

Melting point/Melting range: Undetermined.

(Contd. on page 6)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll CRE Part 1 Developer for X-ray films

(Contd. of page 5)

Boiling point/Boiling range:	> 100 °C
. Flash point:	Not applicable.
. Ignition temperature:	520 °C
. Self-igniting:	Product is not selfigniting.
. Danger of explosion:	Product does not present an explosion hazard.
. Vapour pressure at 20 °C:	23 hPa
. Density at 20 °C:	1.259 g/cm ³
. Solubility in / Miscibility with water:	Fully miscible.
. Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
. Solvent content:	
Organic solvents:	2.2 %
Water:	>69 %
. 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:** Stable at environment temperature.
- . 10.3 Possibility of hazardous reactions
 - Reacts with acids, alkalis and oxidizing agents.
 - Reacts with acids releasing sulphur dioxide.
- . 10.4 Conditions to avoid No further relevant information available.
- . 10.5 Incompatible materials: Under certain fire conditions, traces of other toxic gases cannot be excluded.
- . 10.6 Hazardous decomposition products:
 - Irritant gases/vapours
 - Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

- . 11.1 Information on toxicological effects

- . Acute toxicity:

- . LD/LC50 values relevant for classification:

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

Oral	LD50	320 mg/kg (rat)
------	------	-----------------

1310-58-3 potassium hydroxide

Oral	LD50	273 mg/kg (rat)
------	------	-----------------

- . Primary irritant effect:

- . **on the skin:** Irritant to skin and mucous membranes.
- . **on the eye:** Strong irritant with the danger of severe eye injury.
- . **Sensitization:** Sensitization possible through skin contact.

- . Additional toxicological information:

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

(Contd. on page 7)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll CRE Part 1 Developer for X-ray films

(Contd. of page 6)

Irritant

The preparation is "irritant". J.R. Young, M.J. How, A.P. Walker and W.M.H. Worth (1988): Classification as corrosive or irritant to skin of preparations containing acidic or alkaline substances, without testing on animals. Toxic. in Vitro, Bd.2, Nr.1, 1988, S.19-26].

- . **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
Muta. 2, Carc. 2

SECTION 12: Ecological information

. 12.1 Toxicity

. Aquatic toxicity:

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

EC50 48h: 0.29 mg/l (daphnia magna (Großer Wasserfloh))

LC50 96h: 0.044 mg/l (Pimephales promelas)

1310-58-3 potassium hydroxide

LC50 96h: 80 mg/l (fish (acute toxicity study))

- . **12.2 Persistence and degradability** No further relevant information available.
- . **12.3 Bioaccumulative potential** No further relevant information available.
- . **12.4 Mobility in soil** No further relevant information available.

. Ecotoxicological effects:

. **Remark:** Very toxic for fish

. Additional ecological information:

. General notes:

Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Very toxic for aquatic organisms

. 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 together with household garbage. Do not allow product to reach sewage system.

. European waste catalogue

09 01 01*	water-based developer and activator solutions
-----------	---

. Uncleaned packaging:

. **Recommendation:** Disposal must be made according to official regulations.

. **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

. 14.1 UN-Number

. **ADR, IMDG, IATA**

UN3082

(Contd. on page 8)

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

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll CRE Part 1 Developer for X-ray films

(Contd. of page 7)

. 14.2 UN proper shipping name

. ADR 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hydroquinone)

. IMDG ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hydroquinone), MARINE POLLUTANT

. IATA ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hydroquinone)

. 14.3 Transport hazard class(es)

. ADR



. Class 9 (M6) Miscellaneous dangerous substances and articles.

. Label 9

. IMDG, IATA



. Class 9 Miscellaneous dangerous substances and articles.

. Label 9

. 14.4 Packing group

. ADR, IMDG, IATA III

. 14.5 Environmental hazards:

Product contains environmentally hazardous substances: hydroquinone

. Marine pollutant:

Yes
Symbol (fish and tree)

. Special marking (ADR):

Symbol (fish and tree)

. Special marking (IATA):

Symbol (fish and tree)

. 14.6 Special precautions for user

Warning: Miscellaneous dangerous substances and articles.

. Danger code (Kemler):

90

. EMS Number:

F-A,S-F

. 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

. Transport/Additional information:

. ADR

. Limited quantities (LQ) 5L

. Transport category 3

. Tunnel restriction code E

. UN "Model Regulation":

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hydroquinone), 9, III

EN

(Contd. on page 9)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll CRE Part 1 Developer for X-ray films

(Contd. of page 8)

SECTION 15: Regulatory information

. **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this 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.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H319 Causes serious eye irritation.
- H341 Suspected of causing genetic defects.
- H351 Suspected of causing cancer.
- H400 Very toxic to aquatic life.
- R22 Harmful if swallowed.
- R35 Causes severe burns.
- R36/38 Irritating to eyes and skin.
- 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.
- R68 Possible risk of irreversible effects.

. **Contact:** e-mail: sida@tetenal.com

. **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 Organization
 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 Harmonized 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

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

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

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

- . 1.1 Product identifier**
- . Trade name: Roentoroll Part 2 X-ray developer**
- . Article number:** 104000 Part 2, 44063 Part 2
- . 1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- . Application of the substance / the preparation** Developer for X-ray films
- . 1.3 Details of the supplier of the safety data sheet**
- . Manufacturer/Supplier:**
TETENAL Europe GmbH
Schützenwall 31-35
D-22844 Norderstedt / Germany
Phone: ++49 (0) 40 521 45-0; Fax: +49 (0) 40-52145-296
www.tetenal.com; E-Mail: info@tetenal.com
- TETENAL Ltd.,
2 Meridian West, Meridian Business Park, Leicester LE19 1WX
Phone: 0116 - 289 3644; E-Mail: uk@tetenal.com; www.tetenaluk.com
- . Further information obtainable from:** Department environment and safety. E-Mail: info@tetenal.com
- . 1.4 Emergency telephone number:** Poison Information Centre Berlin (Germany): +49 (0) 30 - 30686 790

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.
- . Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Not applicable.
- . 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 according to the latest editions of the EU-lists, and extended by company and literature data.
- . 2.2 Label elements**
- . Labelling according to EU guidelines:**
Observe the general safety regulations when handling chemicals.
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV).
- . 2.3 Other hazards**
- . Results of PBT and vPvB assessment**
- . PBT:** Not applicable.
- . vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- . 3.2 Chemical characterization: Mixtures**
- . Description:** Mixture of substances listed below with nonhazardous additions.

. Dangerous components:

CAS: 68310-08-7	glutaraldehyde-bisulfite dipotassium salt	25-50%
EINECS: 269-696-3		

(Contd. on page 2)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll Part 2 X-ray developer

		(Contd. of page 1)
CAS: 107-21-1 EINECS: 203-473-3 Index number: 603-027-00-1	ethylene glycol / ethane-1,2-diol ☒ Xn R22 ⚠ Acute Tox. 4, H302	0.1 - <1%
CAS: 7732-18-5 EINECS: 231-791-2	water	60-90%

. **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:** Immediately remove any clothing/shoes soiled by the product.
- . **After skin contact:** Immediately rinse with water.
- . **After eye contact:** Rinse opened eye for several (15 min) under running water.
- . **After swallowing:** Rinse out mouth and then drink plenty of water.
- . **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- . **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:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- . **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- . **5.3 Advice for firefighters**
- . **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

- . **6.1 Personal precautions, protective equipment and emergency procedures** Ensure adequate ventilation
- . **6.2 Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ 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).
Pick up mechanically.
- . **6.4 Reference to other sections** No dangerous substances are released.

SECTION 7: Handling and storage

- . **7.1 Precautions for safe handling** No special measures required.
- . **Information about fire - and explosion protection:** No special measures required.
- . **7.2 Conditions for safe storage, including any incompatibilities**
- . **Storage:**
- . **Requirements to be met by storerooms and receptacles:** No special requirements.
- . **Information about storage in one common storage facility:** Store away from foodstuffs.
- . **Further information about storage conditions:**
Protect from heat and direct sunlight.
Store under lock and key and out of the reach of children.
Recommended storage temperature: 5-25 °C

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll Part 2 X-ray developer

(Contd. of page 2)

Protect from exposure to the light.

. **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

. **Additional information about design of technical facilities:** No further data; see item 7.. **8.1 Control parameters**. **Ingredients 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 valid during the making were used as basis.. **8.2 Exposure controls**. **Personal protective equipment:**. **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

Avoid contact with the eyes and skin.

. **Respiratory protection:** Not required.. **Protection of hands:**

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**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Butyl rubber, BR

Nitrile rubber, NBR

Neoprene gloves

. **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

. **Eye protection:** Goggles recommended during refilling. **Body protection:** Protective work clothing

SECTION 9: Physical and chemical properties

. **9.1 Information on basic physical and chemical properties**. **General Information**. **Appearance:**. **Form:** Fluid. **Colour:** Colourless. **Odour:** Recognizable. **pH-value at 20 °C:** 3.5. **Change in condition**. **Melting point/Melting range:** Undetermined.. **Boiling point/Boiling range:** > 100 °C. **Flash point:** Not applicable.. **Self-igniting:** Product is not selfigniting.. **Danger of explosion:** Product does not present an explosion hazard.

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll Part 2 X-ray developer

(Contd. of page 3)

. Vapour pressure at 20 °C:	23 hPa
. Density at 20 °C:	1.216 g/cm ³
. Solubility in / Miscibility with water:	Fully miscible.
. Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
. Solvent content:	
Organic solvents:	0.0 %
Water:	>60 %
. 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 No dangerous reactions known.
- . 10.4 Conditions to avoid No further relevant information available.
- . 10.5 Incompatible materials: No further relevant information available.
- . 10.6 Hazardous decomposition products: No dangerous decomposition products known.

SECTION 11: Toxicological information

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

SECTION 12: Ecological information

- . 12.1 Toxicity
- . Aquatic toxicity: No further relevant information available.
- . 12.2 Persistence and degradability No further relevant information available.
- . 12.3 Bioaccumulative potential No further relevant information available.
- . 12.4 Mobility in soil No further relevant information available.
- . Additional ecological information:
- . General notes:
Do not allow product to reach ground water, water course or sewage system.
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
- . 12.5 Results of PBT and vPvB assessment
- . PBT: Not applicable.
- . vPvB: Not applicable.

(Contd. on page 5)

EN

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

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll Part 2 X-ray developer

. **12.6 Other adverse effects** No further relevant information available.

(Contd. of page 4)

SECTION 13: Disposal considerations

. **13.1 Waste treatment methods**

. **Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

. **European waste catalogue**

09 01 01	water-based developer and activator solutions
----------	---

. **Uncleaned packaging:**

. **Recommendation:** Disposal must be made according to official regulations.

. **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

. **14.1 UN-Number**

. **ADR, ADN, IMDG, IATA** Void

. **14.2 UN proper shipping name**

. **ADR, ADN, IMDG, IATA** Void

. **14.3 Transport hazard class(es)**

. **ADR, ADN, IMDG, IATA**

. **Class** Void

. **14.4 Packing group**

. **ADR, IMDG, IATA** Void

. **14.5 Environmental hazards:**

. **Marine pollutant:** No

. **14.6 Special precautions for user**

Not applicable.

. **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

. **UN "Model Regulation":**

-

SECTION 15: Regulatory information

. **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this 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.

R22 Harmful if swallowed.

. **Contact:** e-mail: sida@tetenal.com

. **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)

(Contd. on page 6)

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

Printing date 22.07.2013

version no: 1

Revision: 22.07.2013

Trade name: Roentoroll Part 2 X-ray developer

(Contd. of page 5)

ICAO: International Civil Aviation Organization

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 Harmonized 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)

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

-EN-

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 2

Revision: 22.07.2013

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

- . **1.1 Product identifier**
- . **Trade name: Roentoroll Part 3**
- . **Article number:** 104000 CRE, 44094 Part 3
- . **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- . **Application of the substance / the preparation** Developer for X-ray films
- . **1.3 Details of the supplier of the safety data sheet**
- . **Manufacturer/Supplier:**
TETENAL Europe GmbH
Schützenwall 31-35
D-22844 Norderstedt / Germany
Phone: ++49 (0) 40 521 45-0; Fax: +49 (0) 40-52145-296
www.tetenal.com; E-Mail: info@tetenal.com


- TETENAL Ltd.,
2 Meridian West, Meridian Business Park, Leicester LE19 1WX
Phone: 0116 - 289 3644; E-Mail: uk@tetenal.com; www.tetenaluk.com

- . **Further information obtainable from:** Department environment and safety. E-Mail: info@tetenal.com
- . **1.4 Emergency telephone number:** Poison Information Centre Berlin (Germany): +49 (0) 30 - 30686 790

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 Irrit. 2 H319 Causes serious eye irritation.
Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

 - . **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Xi; Irritant
R36/38: Irritating to eyes and skin.
R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 - . **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 according to the latest editions of the EU-lists, and extended by company and literature data.

 - . **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**
- 

GHS07
- . **Signal word** Warning
 - . **Hazard statements**
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H412 Harmful to aquatic life with long lasting effects.

(Contd. on page 2)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 2

Revision: 22.07.2013

Trade name: Roentoroll Part 3

(Contd. of page 1)

. Precautionary statements


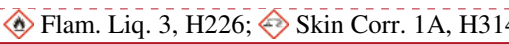



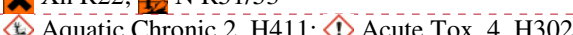
- P264 Wash thoroughly after handling.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P332+P313 If skin irritation occurs: Get medical advice/attention.
 P362 Take off contaminated clothing and wash before reuse.
 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 Chemical characterization: Mixtures. **Description:** Mixture of substances listed below with nonhazardous additions.**. Dangerous components:**

CAS: 64-19-7 EINECS: 200-580-7 Index number: 607-002-00-6 Reg.nr.: 01-2119475328-30-xxxx	acetic acid  C R35 R10 	10-<25%
CAS: 111-46-6 EINECS: 203-872-2 Index number: 603-140-00-6	diethylene glycol  Xn R22 	10-<25%
CAS: 92-43-3 EINECS: 202-155-1 Index number: 606-022-00-2	1-phenyl-3-pyrazolidone (Phenidone A)  Xn R22; N R51/53 	5-10%
CAS: 25322-68-3 NLP: 500-038-2	Polyethylene glycol substance with a Community workplace exposure limit	25-50%
CAS: 7732-18-5 EINECS: 231-791-2	water	10-30%

. **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:** Immediately remove any clothing/shoes soiled by the product.**. After inhalation:**

In case of unconsciousness place patient stably in side position for transportation.
 Supply fresh air; consult doctor in case of complaints.

. **After skin contact:** Immediately wash with water and soap and rinse thoroughly.**. After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

. **After swallowing:** Drink plenty of water and provide fresh air. Call for a doctor immediately.**. 4.2 Most important symptoms and effects, both acute and delayed**

No further relevant information available.

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

No further relevant information available.

EN

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 2

Revision: 22.07.2013

Trade name: Roentoroll Part 3

(Contd. of page 2)

SECTION 5: Firefighting measures

- . **5.1 Extinguishing media**
- . **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- . **5.2 Special hazards arising from the substance or mixture**
Under certain fire conditions, traces of other toxic gases cannot be excluded.
- . **5.3 Advice for firefighters**
- . **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

- . **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective clothing.
Ensure adequate ventilation
- . **6.2 Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.
Do not allow to enter sewers/ 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).
Pick up mechanically.
- . **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- . **7.1 Precautions for safe handling** No special precautions are necessary if used correctly.
- . **Information about fire - and explosion protection:** No special measures required.
- . **7.2 Conditions for safe storage, including any incompatibilities**
- . **Storage:**
- . **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- . **Information about storage in one common storage facility:**
Do not store together with alkalis (caustic solutions).
Store away from foodstuffs.
Store away from oxidizing agents.
- . **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Store under lock and key and out of the reach of children.
Recommended storage temperature: 5-25 °C
- . **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

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

(Contd. on page 4)

-EN-

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

Printing date 22.07.2013

version no: 2

Revision: 22.07.2013

Trade name: Roentoroll Part 3

(Contd. of page 3)

. 8.1 Control parameters

. Ingredients with limit values that require monitoring at the workplace:

25322-68-3 Polyethylene glycol (25-50%)

WEEL (USA)	Long-term value: 10 mg/m ³ aerosol
------------	--

64-19-7 acetic acid (10-<25%)

IOELV (EU)	Long-term value: 25 mg/m ³ , 10 ppm
PEL (USA)	Long-term value: 25 mg/m ³ , 10 ppm
REL (USA)	Short-term value: 37 mg/m ³ , 15 ppm Long-term value: 25 mg/m ³ , 10 ppm
TLV (USA)	Short-term value: 37 mg/m ³ , 15 ppm Long-term value: 25 mg/m ³ , 10 ppm

111-46-6 diethylene glycol (10-<25%)

WEL (Great Britain)	Long-term value: 101 mg/m ³ , 23 ppm
WEEL (USA)	Long-term value: 10 mg/m ³

. **Additional information:** The lists valid during the making were used as basis.

. 8.2 Exposure controls

. Personal protective equipment:

. General protective and hygienic measures:

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing
- Wash hands before breaks and at the end of work.
- Do not inhale gases / fumes / aerosols.
- Avoid contact with the eyes and skin.

. **Respiratory protection:** Ensure adequate ventilation

. Protection of hands:



Protective gloves

Impervious 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

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- Butyl rubber, BR
- Nitrile rubber, NBR
- Neoprene gloves

. Penetration time of glove material

Glove material	breakthroug-time	layer thickness
Butyl rubber:	≥ 480 min	≥0,4mm
nitrile:	≥480min	≥0,38mm
Neopren:	≥240min	≥0,65mm

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.07.2013

version no: 2

Revision: 22.07.2013

Trade name: Roentoroll Part 3

(Contd. of page 4)

. Eye protection:



Tightly sealed goggles

. Body protection: Protective work clothing

SECTION 9: Physical and chemical properties

. 9.1 Information on basic physical and chemical properties

. General Information

. Appearance:

Form:	Fluid
Colour:	Light yellow
Odour:	Characteristic

. pH-value at 20 °C: 2

. Change in condition

Melting point/Melting range: Undetermined.
 Boiling point/Boiling range: > 100 °C

. Flash point: Not applicable.

. Ignition temperature: 230 °C

. Self-igniting: Product is not selfigniting.

. Danger of explosion: Product does not present an explosion hazard.

. Explosion limits:

Lower:	0.7 Vol %
Upper:	22.0 Vol %

. Vapour pressure at 20 °C: 23 hPa

. Density at 20 °C: 1.11 g/cm³

. Solubility in / Miscibility with water:

Fully miscible.

. Viscosity:

Dynamic:	Not determined.
Kinematic:	Not determined.

. Solvent content:

Organic solvents:	38.2 %
Water:	>14 %

. 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 acids, alkalis and oxidizing agents.

. 10.4 Conditions to avoid: No further relevant information available.

. 10.5 Incompatible materials: No further relevant information available.

(Contd. on page 6)

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

Printing date 22.07.2013

version no: 2

Revision: 22.07.2013

Trade name: Roentoroll Part 3

(Contd. of page 5)

. 10.6 Hazardous decomposition products: Irritant gases/vapours

SECTION 11: Toxicological information

. 11.1 Information on toxicological effects

. Acute toxicity:

. LD/LC50 values relevant for classification:

64-19-7 acetic acid

Oral	LD50	3310 mg/kg (rat)
Dermal	LD50	1130 mg/kg (rabbit)
Inhalative	LC50	1h: 5620 mg/l (mou)

111-46-6 diethylene glycol

Oral	LD50	12565 mg/kg (rat)
------	------	-------------------

92-43-3 1-phenyl-3-pyrazolidone (Phenidone A)

Oral	LD50	475 mg/kg (rat)
------	------	-----------------

. Primary irritant effect:

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

. on the eye: Irritating effect.

. Sensitization: No sensitizing effects known.

. Additional toxicological information:

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

Irritant

SECTION 12: Ecological information

. 12.1 Toxicity

. Aquatic toxicity:

64-19-7 acetic acid

LC50	24h: >100 mg/l (daphnia magna (Großer Wasserfloh))
	96h: >1000 mg/l (fish (acute toxicity study))
	96h: 75 mg/l (Lepomis macrochirus)
	24h: 106 mg/l (Pimephales promelas)

111-46-6 diethylene glycol

EC50	24h: >1000 mg/l (daphnia magna (Großer Wasserfloh))
LC50	96h: >32000 mg/l (fish (acute toxicity study))

92-43-3 1-phenyl-3-pyrazolidone (Phenidone A)

EC50	96h: 10 mg/l (daphnia magna (Großer Wasserfloh))
LC50	96h: 1-10 mg/l (fish (acute toxicity study))

. 12.2 Persistence and degradability No further relevant information available.

. 12.3 Bioaccumulative potential No further relevant information available.

. 12.4 Mobility in soil No further relevant information available.

. Ecotoxicological effects:

. Remark: Harmful to fish

. Additional ecological information:

. General notes:

Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.

(Contd. on page 7)

-EN-

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

Printing date 22.07.2013

version no: 2

Revision: 22.07.2013

Trade name: Roentoroll Part 3

(Contd. of page 6)

- Danger to drinking water if even small quantities leak into the ground.
- Harmful to aquatic organisms
- . **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 together with household garbage. Do not allow product to reach sewage system.
- . **European waste catalogue**

09 01 01*	water-based developer and activator solutions
-----------	---

- . **Uncleaned packaging:**
- . **Recommendation:** Disposal must be made according to official regulations.
- . **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

. 14.1 UN-Number	
. ADR, IMDG, IATA	UN2790
. 14.2 UN proper shipping name	
. ADR	2790 ACETIC ACID SOLUTION
. IMDG, IATA	ACETIC ACID SOLUTION
. 14.3 Transport hazard class(es)	
. ADR	
	
. Class	8 (C3) Corrosive substances.
. Label	8
<hr style="border-top: 1px dashed black;"/>	
. IMDG, IATA	
	
. Class	8 Corrosive substances.
. Label	8
. 14.4 Packing group	
. ADR, IMDG, IATA	III
. 14.5 Environmental hazards:	
. Marine pollutant:	No
. 14.6 Special precautions for user	Warning: Corrosive substances.
. Danger code (Kemler):	80
. EMS Number:	F-A,S-B

(Contd. on page 8)

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

Printing date 22.07.2013

version no: 2

Revision: 22.07.2013

Trade name: Roentoroll Part 3

(Contd. of page 7)

. Segregation groups	Acids
. 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
. Transport/Additional information:	
. ADR	
. Limited quantities (LQ)	5L
. Transport category	3
. Tunnel restriction code	E
. UN "Model Regulation":	UN2790; ACETIC ACID SOLUTION; 8; III

SECTION 15: Regulatory information

. 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

. **Relevant phrases**

H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H411 Toxic to aquatic life with long lasting effects.
R10 Flammable.
R22 Harmful if swallowed.
R35 Causes severe burns.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

. **Contact:** e-mail: sida@tetenal.com

. **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 Organization
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 Harmonized 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

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

EN