

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

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

1.1 Product identifier

Trade name : Ardrox 1074

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub- : Cleaning agent for metal surfaces, Pickling agent for metal
stance/Mixture surfaces
Recommended restrictions : None known.
on use

1.3 Details of the supplier of the safety data sheet

Company : Chemetall Ltd
Denbigh Road
Bletchley Milton Keynes MK1 1PB
Telephone : 01908 649333
Telefax : 01908 373939
Contact person product safety
Telephone : +49(0)6971652832
E-mail address : msds.de@chemetall.com

1.4 Emergency telephone number

Emergency telephone : 01908 649333
number

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin corrosion, Category 1B H314: Causes severe skin burns and eye damage.

Classification (67/548/EEC, 1999/45/EC)

Corrosive R34: Causes burns.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Ardrox 1074


Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

Signal word	:	Danger	
Hazard statements	:	H314	Causes severe skin burns and eye damage.
Precautionary statements	:	Prevention: P260 P262 P280	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Do not get in eyes, on skin, or on clothing. Wear protective gloves/ protective clothing/ eye protection/ face protection.
		Response: P301 + P330 + P331 P303 + P361 + P353 P305 + P351 + P338	IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P308 P310	IF exposed or concerned: Immediately call a POISON CENTER or doctor/ physician.
		Disposal: P501	Dispose of contents/ container to an approved waste disposal plant.

Labelling according to EC Directives (1999/45/EC)

Hazard pictograms	:		
		Corrosive	
R-phrases	:	R34	Causes burns.
S-phrases	:	S23 S24/25 S26 S36/37/39 S45	Do not breathe gas/fumes/vapour/spray. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

S60

the label where possible).
This material and its container must be
disposed of as hazardous waste.

Hazardous components which must be listed on the label:

- 1341-49-7 Ammonium hydrogendifluoride

Detergents Regulation EC 907/2006 : Phosphates less than 5 %

2.3 Other hazards

Classification "corrosive" due to the extreme pH value.

SECTION 3: Composition/information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

Chemical nature : Mixture of acids and organic solvents in an inorganic gelling agent.

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
Orthophosphoric acid	7664-38-2 231-633-2 01-2119485924-24-0007	C; R34 Nota B	Skin Corr. 1B; H314	>= 2.5 - < 5
2,2'-oxydiethanol; diethylene-glycol	111-46-6 203-872-2	Xn; R22	Acute Tox. 4; H302	>= 1 - < 2.5
Butanone; Ethyl methyl ketone	78-93-3 01-2119457290-43	F; R11 Xi; R36 R66 R67	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336	>= 1 - < 2.5
2-Butoxyethanol	111-76-2	Xn; R20/21/22	Acute Tox. 4;	>= 1 - < 2.5

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

	203-905-0 01-2119475108-36	Xi; R36/38	H332 Acute Tox. 4; H312 Acute Tox. 4; H302 Eye Irrit. 2; H319 Skin Irrit. 2; H315	
Citric acid monohydrate	5949-29-1 201-069-1 01-2119457026-42	Xi; R36	Eye Irrit. 2; H319	>= 1 - < 2.5
Ammonium hydrogendi- fluoride	1341-49-7 215-676-4 01-2119489180-38	T; R25 C; R34	Acute Tox. 3; H301 Skin Corr. 1B; H314	>= 0.1 - < 1

For the full text of the R-phrases mentioned in this Section, see Section 16.
For the full text of the H-Statements mentioned in this Section, see Section 16.
For the full text of the Notas mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : First-aid crew: Ensure self-protection.
Move out of dangerous area.
Take off contaminated clothing and shoes immediately.
- If inhaled : Move to fresh air.
If symptoms persist, call a physician.
- In case of skin contact : Wash off with soap and plenty of water.
Call a physician immediately.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids.
Call a physician immediately.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.
Do NOT induce vomiting.

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No information available.

Risks : If swallowed, severe burns in the oral cavity and throat as well as danger of perforation of the digestive tract and stomach. Inhalation of vapours is irritating to the respiratory system, may cause throat pain and cough.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.
For specialist advice physicians should contact the Poisons Information Service.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Carbon dioxide (CO₂)
Dry powder
Alcohol-resistant foam
Water spray

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Combustion may cause:
Carbon dioxide (CO₂)
Carbon monoxide
Oxides of phosphorus
nitrogen oxides (NO_x)
Hydrogen fluoride

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Further information : Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Ensure adequate ventilation.
Wear personal protective equipment.

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.
Inform the relevant authorities if it enters sewers, aquatic environment or soil.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Ensure adequate ventilation.
Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

See chapter 8 and 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.
Have eye wash bottle or eye rinse ready at the work place.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep containers tightly closed in a cool, well-ventilated place.
Store in a place accessible by authorized persons only.

Storage period : 36 month

Storage temperature : 5 - 40 °C

7.3 Specific end use(s)

Specific use(s) : Cleaning agent for metal surfaces, Pickling agent for metal surfaces

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components	CAS-No.	Value	Control pa-	Update	Basis
------------	---------	-------	-------------	--------	-------

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Chemetall

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

			Parameters		
Orthophosphoric acid	7664-38-2	TWA	1 mg/m ³	2000-06-16	2000/39/EC
Further information	: Indicative				
	7664-38-2	STEL	2 mg/m ³	2000-06-16	2000/39/EC
Further information	: Indicative				
	7664-38-2	TWA	1 mg/m ³	2005-04-06	GB EH40
	7664-38-2	STEL	2 mg/m ³	2005-04-06	GB EH40
2,2'-oxydiethanol; diethylene-glycol	111-46-6	TWA	23 ppm 101 mg/m ³	2005-04-06	GB EH40
Further information	: 2: Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used				
Butanone; Ethyl methyl ketone	78-93-3	TWA	200 ppm 600 mg/m ³	2000-06-16	2000/39/EC
Further information	: Indicative				
	78-93-3	STEL	300 ppm 900 mg/m ³	2000-06-16	2000/39/EC
Further information	: Indicative				
	78-93-3	TWA	200 ppm 600 mg/m ³	2005-04-06	GB EH40
Further information	: Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.				
	78-93-3	STEL	300 ppm 899 mg/m ³	2005-04-06	GB EH40
Further information	: Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.				
2-Butoxyetha-	111-76-2	TWA	20 ppm 98 mg/m ³	2000-06-16	2000/39/EC

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

nol					
Further information	:	skin: Identifies the possibility of significant uptake through the skin Indicative			
	111-76-2	STEL	50 ppm 246 mg/m3	2000-06-16	2000/39/EC
Further information	:	skin: Identifies the possibility of significant uptake through the skin Indicative			
	111-76-2	TWA	25 ppm	2005-04-06	GB EH40
Further information	:	Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
	111-76-2	STEL	50 ppm	2005-04-06	GB EH40
Further information	:	Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
Ammonium hydrogendi-fluoride	1341-49-7	TWA	2.5 mg/m3	2000-06-16	2000/39/EC
Further information	:	Indicative			
	1341-49-7	TWA	2.5 mg/m3 Measured as fluoride	2005-04-06	GB EH40
Further information	:	2: Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used Measured as fluoride			
	1341-49-7	TWA	2.5 mg/m3 Fluorine	2007-08-01	GB EH40
Further information	:	2: Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used Fluorine			

DNEL/DMEL

Orthophosphoric acid : End Use: Workers, DNEL
Exposure routes: Inhalation
Exposure time: 8 h

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

Value: 2.92 mg/m³

PNEC
Ammonium hydrogendi-
fluoride

: Fresh water
Value: 1.3 mg/l

Soil
Value: 22 mg/kg

8.2 Exposure controls

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Respiratory protection : In case of insufficient ventilation wear suitable respiratory equipment.
Recommended Filter type:
A-P2

Hand protection : Neoprene gloves
Protective gloves complying with EN 374.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Eye protection : Eye protection (EN 166)
Tightly fitting safety goggles
Have eye wash bottle or eye rinse ready at the work place.

Skin and body protection : Chemical resistant protective clothing according to DIN EN 13034 (Type 6)

Hygiene measures : Take off contaminated clothing and shoes immediately.
Keep away from food, drink and animal feedingstuffs.
Wash hands before breaks and immediately after handling the product.
Avoid contact with skin and eyes.
Do not breathe vapour.
Do not breathe spray.

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.
Inform the relevant authorities if it enters sewers, aquatic environment or soil.

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: liquid
Colour	: yellow
Odour	: ammoniacal
Flash point	: not applicable
pH	: 1 - 2 at 20 °C (undiluted)
Melting point/range	: ca. 0 °C
Boiling point/boiling range	: ca. 100 °C
Density	: 1.03 g/cm ³ at 20 °C
Water solubility	: soluble
Viscosity, dynamic	: 500 - 1,000 mPa*s at 20 °C
Flow time	: 33 - 55 sec. value 33 - 55 sec; UPV 6 10 507

9.2 Other information

Explosivity	: no explosion risk
VOC	: Value: 49 g/l

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Gives off hydrogen by reaction with metals.
Stable under normal conditions.

10.4 Conditions to avoid

Conditions to avoid : Protect from frost, heat and sunlight.

10.5 Incompatible materials

Materials to avoid : Incompatible with bases.

10.6 Hazardous decomposition products

Risk of decomposition. : Decomposes on heating.
Carbon oxides
Oxides of phosphorus
nitrogen oxides (NOx)
ammonia
Hydrogen fluoride

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Acute oral toxicity
2,2'-oxydiethanol; diethylene- : LD50: 12,565 mg/kg
glycol Species: rat

Butanone; Ethyl methyl ke- : LD50: 2,800 - 5,600 mg/kg
tone Species: rat

2-Butoxyethanol : LD50: 1,746 mg/kg
Species: rat

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

- Citric acid monohydrate : LD50: 11,700 mg/kg
Species: rat
- Ammonium hydrogendi-
fluoride : LD50: 60 - 130 mg/kg
Species: rat
- Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
vapour
Method: Calculation method
- Acute inhalation toxicity
Butanone; Ethyl methyl ke-
tone : LC50: 34.5 mg/l
Exposure time: 4 h
Species: rat
- Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method
- Acute dermal toxicity
2,2'-oxydiethanol; diethylene-
glycol : LD50: 11,890 mg/kg
Species: rabbit
- Butanone; Ethyl methyl ke-
tone : LD50: 5,000 - 13,000 mg/kg
Species: rabbit
- 2-Butoxyethanol : LD50: > 2,000 mg/kg
Species: guinea pig
Method: OECD Test Guideline 402

Skin corrosion/irritation

- Skin irritation : Causes severe burns.

Serious eye damage/eye irritation

- Eye irritation : Causes serious eye damage.

Respiratory or skin sensitization

- Sensitisation : no data available

Germ cell mutagenicity

- Citric acid monohydrate : Ames test
Result: negative

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

Reproductive toxicity

Citric acid monohydrate : Animal testing did not show any effects on fertility.

Teratogenicity

Citric acid monohydrate : Animal testing did not show any effects on foetal development.

Toxicology Assessment

Acute effects : If swallowed, severe burns in the oral cavity and throat as well as danger of perforation of the digestive tract and stomach.

SECTION 12: Ecological information

12.1 Toxicity

Ecotoxicology studies for the product are not available.

Toxicity to fish

Butanone; Ethyl methyl ketone : LC50: > 3,000 mg/l
Exposure time: 96 h
Species: Fish

2-Butoxyethanol : LC50: 1,490 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)

Citric acid monohydrate : LC50: 440 - 706 mg/l
Exposure time: 96 h
Species: Carassius auratus (goldfish)

Ammonium hydrogendifluoride : LC50: 422 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates

Butanone; Ethyl methyl ketone : EC50: 1,382 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)

2-Butoxyethanol : EC50: 1,720 mg/l
Exposure time: 24 h
Species: Daphnia

Citric acid monohydrate : EC50: 120 mg/l
Exposure time: 72 h

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

Species: *Daphnia magna* (Water flea)

Toxicity to algae
Butanone; Ethyl methyl ketone : 4,300 mg/l
Exposure time: 168 h
Species: *Scenedesmus quadricauda* (Green algae)

2-Butoxyethanol : Cell multiplication inhibition test EC0: 900 mg/l
Exposure time: 168 h
Species: *Scenedesmus quadricauda* (Green algae)

Toxicity to bacteria
Butanone; Ethyl methyl ketone : 1,150 mg/l
Exposure time: 16 h
Species: *Pseudomonas putida*

2-Butoxyethanol : EC0: 700 mg/l
Exposure time: 16 h
Species: *Pseudomonas putida*

Citric acid monohydrate : > 10,000 mg/l
Exposure time: 16 h
Species: *Pseudomonas putida*

12.2 Persistence and degradability

Biodegradability : no data available

Biodegradability
2-Butoxyethanol : 100 %
Testing period: 28 d
Readily biodegradable

Citric acid monohydrate : 98 %
Method: OECD Test Guideline 302
Readily biodegradable

12.3 Bioaccumulative potential

Bioaccumulation : Bioaccumulation is unlikely.

12.4 Mobility in soil

Distribution among environmental compartments : no data available

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Chemetall

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

12.5 Results of PBT and vPvB assessment

This mixture does not contain substances considered to be persistent, bioaccumulating and toxic (PBT)., This mixture does not contain substances considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

Chemical Oxygen Demand (COD)

Butanone; Ethyl methyl ketone : 2,440 mg/g

Additional ecological information : slightly water endangering
Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.

Contaminated packaging : Dispose of as unused product.

Waste Code : Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

SECTION 14: Transport information

ADR

UN number : 3264
UN proper shipping name : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., Orthophosphoric acid
Transport hazard class(es) : 8
Packing group : III
Classification Code : C1
Hazard identification No : 80
Packing instruction (LQ) : LQ7
Limited Quantity (LQ) Inner : 5.00 L
Packaging
Labels : 8
Tunnel restriction code : (E)
Environmentally hazardous : no

IATA

UN number : 3264
Description of the goods : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., Orthophosphoric acid
Class : 8

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Chemetall

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

Packing group : III
Labels : 8

IATA_C

Packing instruction (cargo aircraft) : 856
Environmentally hazardous : no

IATA_P

Packing instruction (passenger aircraft) : 852
Environmentally hazardous : no

IMDG

UN number : 3264
Description of the goods : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., Orthophosphoric acid
Class : 8
Packing group : III
Labels : 8
EmS Number 1 : F-A
EmS Number 2 : S-B
Marine Pollutant : no

RID

UN number : 3264
Description of the goods : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., Orthophosphoric acid
Transport hazard class(es) : 8
Packing group : III
Classification Code : C1
Hazard identification No : 80
Labels : 8
Packing instruction (LQ) : LQ19
Environmentally hazardous : no

SECTION 15: Regulatory information

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

Candidate List of Substances of Very High Concern for Authorisation : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

Water contaminating class (Germany) : WGK 1 slightly water endangering
VWVWS A4

Other regulations : The product is classified and labelled in accordance with EC directives or respective national laws.
Regional or national implementations of GHS may not imple-

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Chemetall

Ardrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

ment all hazard classes and categories.

15.2 Chemical Safety Assessment

For the lead substance(s) in the mixture, there is no exposure scenario available.

For a mixture it is not mandatory to include an exposure scenario in the material safety data sheet.

The necessary safety - related information is stated in the first 16 sections.

SECTION 16: Other information

Full text of R-phrases referred to under sections 2 and 3

R11	Highly flammable.
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
R22	Harmful if swallowed.
R25	Toxic if swallowed.
R34	Causes burns.
R36	Irritating to eyes.
R36/38	Irritating to eyes and skin.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.

Full text of Notas referred to under section 3

Nota B	Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different labelling since the hazards vary at different concentrations. In Annex I entries with Note B have a general designation of the following type: nitric acid%. In this case the manufacturer or any other person who markets such a substance in aqueous solution must state the percentage concentration of the solution on the label. Example: nitric acid 45 %. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis. The use of additional data (e.g. specific gravity, degrees Baumé) or descriptive phrases (e.g. fuming or glacial) is permissible.
--------	---

Further information

Adrox 1074

Version: 4.0

Revision Date 29.08.2012

Print Date 31.08.2012

The information provided is based on our current knowledge and experience and apply to the product as delivered. Regarding the product properties, these are not guaranteed. The delivery of this safety datasheet does not free the recipient of the product from his own responsibility to follow the relevant rules and regulations concerning this product.