Safety data sheet
according to Regulation (EC) No 1907/2006, Article 31

Printing date 30.04.2026 *Version number 13 (replaces version 12)* *Revision: 30.04.2026*

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

· **1.1 Product identifier**
· **Trade name: Karl Fischer titrant 5 mg H2O/ml and 2 mg H2O/ml - non hygroscopic**
· **SDS number:** CH7463
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
For professional users only
· **Life cycle stages** IS Use at industrial Sites
· **Application of the substance / the mixture** Chemicals products for laboratory

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
CARLO ERBA REAGENTS
Chaussée du Vexin
Parc d'Affaires des Portes - BP616
27106 VAL DE REUIL Cedex
Téléphone: +33 (0)2 32 09 20 00
Télécopie: +33 (0)2 32 09 20 20
· **Further information obtainable from:**
Q.A / Normative
email: MSDS_CER-SDS@cer.dgroup.it
· **1.4 Emergency telephone number:**
Ireland - Tel : 00 353 1 8092568 - 00 353 1 8379964 (24h/24)
EU Tel : 112

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.



GHS08 health hazard

STOT RE 2 H373 May cause damage to the hearing organs through prolonged or repeated exposure.
Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

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

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· ***Hazard pictograms***



GHS02 GHS07 GHS08

· ***Signal word*** *Danger*

· ***Hazard-determining components of labelling:***
xylene, mixed isomers
ethylbenzene
Iodine

· ***Hazard statements***
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H373 May cause damage to the hearing organs through prolonged or repeated exposure.
H304 May be fatal if swallowed and enters airways.

· ***Precautionary statements***

P210	*Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.*
P280	*Wear protective gloves / eye protection / face protection.*
P303+P361+P353	*IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].*
P304+P340	*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*
P305+P351+P338	*IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*
P403+P233	*Store in a well-ventilated place. Keep container tightly closed.*

· ***2.3 Other hazards***
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable*
· ***vPvB:*** *Not applicable*
· ***Determination of endocrine-disrupting properties*** *Not applicable*

SECTION 3: Composition/information on ingredients

· ***3.2 Mixtures***
· ***Description:*** *Mixture made by the following substances:*

· ***Dangerous components:***

CAS: 1330-20-7 *EINECS: 215-535-7* *Index number: 601-022-00-9* *RTECS: ZE 2100000* *Reg.nr.: 01-2119488216-32*	*xylene, mixed isomers* *Flam. Liq. 3, H226; Asp. Tox. 1, H304; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335*	*50-100%*

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CAS: 100-41-4 *EINECS: 202-849-4* *Index number: 601-023-00-4* *RTECS: DA 0700000*	*ethylbenzene* *Flam. Liq. 2, H225; STOT RE 2, H373; Asp. Tox. 1, H304; Acute Tox. 4, H332*	*10-25%*
CAS: 7553-56-2 *EINECS: 231-442-4* *Index number: 053-001-00-3* *RTECS: NN 1575000* *Reg.nr.: 01-2119485285-30-XXXX*	*Iodine* *STOT RE 1, H372; Aquatic Acute 1, H400; Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335*	*≥5-<10%*

SECTION 4: First aid measures

· ***4.1 Description of first aid measures***
· ***General information:***
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· ***After inhalation:***
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
· ***After skin contact:*** *If skin irritation continues, consult a doctor.*
· ***After eye contact:***
Rinse opened eye for several minutes under running water. Then consult a doctor.
Seek immediate medical advice.
· ***After swallowing:***
Do not induce vomiting; call for medical help immediately.
Call for a doctor immediately.
Rinse out mouth and then drink plenty of water.
Call 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 or alcohol resistant foam.*
· ***For safety reasons unsuitable extinguishing agents:***
Water with full jet.
Water
· ***5.2 Special hazards arising from the substance or mixture***
Can form explosive gas-air mixtures.
Carbon monoxide and carbon dioxide
· ***5.3 Advice for firefighters***
· ***Protective equipment:***
In closed rooms wear a self contained breathing apparatus.
Do not inhale gases in case or fire or combustion.
· ***Additional information*** *Keep receptacles cool with water spray.*

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SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Keep away any ignition source.
Wear protective equipment. Keep unprotected persons away.
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
Ensure adequate ventilation
· **6.2 Environmental precautions:**
Do not allow to penetrate the ground/soil.
Do not allow product to reach sewage system or any water course.
Do not allow to enter sewers/ surface or ground water.
· **6.3 Methods and material for containment and cleaning up:**
Collect the liquid with vacuum in a suitable container and absorb the remainder with a porous material (diatomite, acid binders, universal binders, etc).
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
Dispose contaminated material as waste according to section 13.
· **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**
Store in cool, dry place in tightly closed receptacles.
Keep away from heat and direct sunlight.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.
Pneumatic conveyance only with nitrogen or other inert gases.
· **Information about fire - and explosion protection:**



Keep ignition sources away - Do not smoke.

Protect from heat.
Protect against electrostatic charges.
Use explosion-proof apparatus / fittings and spark-proof tools.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Use only receptacles specifically permitted for this substance/product.
· **Information about storage in one common storage facility:** Not required
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **7.3 Specific end use(s)** No further relevant information available.

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*
SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
CAS: 1330-20-7 xylene, mixed isomers	
IOELV	Short-term value: 442 mg/m³, 100 ppm Long-term value: 221 mg/m³, 50 ppm Skin
CAS: 100-41-4 ethylbenzene	
IOELV	Short-term value: 884 mg/m³, 200 ppm Long-term value: 442 mg/m³, 100 ppm Skin

· **DNELs**		
CAS: 1330-20-7 xylene, mixed isomers		
Inhalative	DNEL (workers-local effects Acute)	16.9 mg/m3 (fishes)

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

· **8.2 Exposure controls**
· **Appropriate engineering controls** No further data; see section 7.
· **Individual protection measures, such as 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.
Store protective clothing separately.
Do not inhale gases / fumes / aerosols.
Do not inhale dust / smoke / mist.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
Use suitable respiratory protective device only when aerosol or mist is formed.



In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Use suitable respiratory protective device in case of insufficient ventilation.
The selected respiratory protection must comply with standard EN 136/140/143/145/149.
· **Hand protection**
The selected protective gloves have to satisfy the specifications of REGULATION (EU) 2016/425 and the standard EN 374 derived from it.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation



Protective gloves

Rubber gloves
Avoid direct contact with the chemical/ the product/ the preparation by organisational measures.
· **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

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application.

· ***Penetration time of glove material***
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· ***Eye/face protection***



Face protection

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

· ***Environmental exposure controls***
In case of unintended release of the product: See section 6 of the Safety Data Sheet.

· ***Risk management measures*** *Keep good industrial hygiene.*

SECTION 9: Physical and chemical properties

· ***9.1 Information on basic physical and chemical properties***	
· ***Molecular weight***	
· ***Physical state***	*Liquid*
· ***Colour:***	*Brown*
· ***Odour:***	*Aromatic*
· ***Odour threshold:***	*Not determined*
· ***Melting point/freezing point:***	*Undetermined*
· ***Boiling point or initial boiling point and boiling range***	*137 °C*
· ***Flammability***	*Flammable.*
· ***Lower and upper explosion limit***	
· ***Lower:***	*1 Vol %*
· ***Upper:***	*7.8 Vol %*
· ***Flash point:***	*26 °C*
· ***Auto-ignition temperature:***	*430 °C*
· ***Decomposition temperature:***	*Not determined*
· ***Viscosity:***	
· ***Kinematic viscosity***	*Not determined*
· ***Dynamic:***	*Not determined*
· ***Solubility***	
· ***water:***	*Not miscible or difficult to mix.*
· ***Partition coefficient n-octanol/water (log value)***	*Not determined*
· ***Vapour pressure at 20 °C:***	*9.5 hPa*
· ***Density and/or relative density***	
· ***Density at 20 °C:***	*0.94 g/cm³*
· ***Relative density***	*Not determined*
· ***Vapour density***	*Not determined*

· ***9.2 Other information***	
· ***Appearance:***	
· ***Form:***	*Fluid*
· ***Important information on protection of health and environment, and on safety.***	
· ***Ignition temperature:***	*Product is not selfigniting.*
· ***Explosive properties:***	*Product is not explosive. However, formation of explosive air/vapour mixtures are possible.*

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· ***Solvent separation test:***	
· ***Organic solvents:***	*93.0 %*
· ***Solids content:***	*7.0 %*
· ***Change in condition***	
· ***Evaporation rate***	*Not determined*

· ***Information with regard to physical hazard classes***	
· ***Explosives***	*Void*
· ***Flammable gases***	*Void*
· ***Aerosols***	*Void*
· ***Oxidising gases***	*Void*
· ***Gases under pressure***	*Void*
· ***Flammable liquids***	*Flammable liquid and vapour.*
· ***Flammable solids***	*Void*
· ***Self-reactive substances and mixtures***	*Void*
· ***Pyrophoric liquids***	*Void*
· ***Pyrophoric solids***	*Void*
· ***Self-heating substances and mixtures***	*Void*
· ***Substances and mixtures, which emit flammable gases in contact with water***	*Void*
· ***Oxidising liquids***	*Void*
· ***Oxidising solids***	*Void*
· ***Organic peroxides***	*Void*
· ***Corrosive to metals***	*Void*
· ***Desensitised explosives***	*Void*

SECTION 10: Stability and reactivity

· ***10.1 Reactivity*** *See 10.3*
· ***10.2 Chemical stability***
· ***Thermal decomposition / conditions to be avoided:***
No decomposition if used and stored according to specifications.
· ***10.3 Possibility of hazardous reactions*** *No dangerous reactions known.*
· ***10.4 Conditions to avoid***
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
· ***10.5 Incompatible materials:*** *No further relevant information available.*
· ***10.6 Hazardous decomposition products:*** *Carbon monoxide, Carbon dioxide.*

SECTION 11: Toxicological information

· ***11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008***
· ***Acute toxicity*** *Based on available data, the classification criteria are not met.*

· ***LD/LC50 values relevant for classification:***

CAS: 1330-20-7 xylene, mixed isomers

Oral	*LD50*	*4,300 mg/kg (rat)*
Dermal	*LD50*	*2,000 mg/kg (rabbit)*
Inhalative	*LC50/4 h*	*21 mg/L (rat)*

· ***Primary irritant effect:***
· ***Skin corrosion/irritation*** *Causes skin irritation.*
· ***Serious eye damage/irritation***
Strong irritant with the danger of severe eye injury.

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Irritating effect.
Causes serious eye irritation.
· ***Inhalation:***
May be harmful if inhaled. May cause respiratory tract irritation.
May cause respiratory irritation.
· ***Respiratory or skin sensitisation*** *Based on available data, the classification criteria are not met.*
· ***Germ cell mutagenicity*** *Based on available data, the classification criteria are not met.*
· ***Carcinogenicity*** *Based on available data, the classification criteria are not met.*
· ***Reproductive toxicity*** *Based on available data, the classification criteria are not met.*
· ***STOT-single exposure*** *May cause respiratory irritation.*
· ***STOT-repeated exposure*** *May cause damage to the hearing organs through prolonged or repeated exposure.*
· ***Aspiration hazard*** *May be fatal if swallowed and enters airways.*
· ***Subacute to chronic toxicity:*** *Cumulative effects in case of repeated exposures.*
· ***11.2 Information on other hazards***

· ***Endocrine disrupting properties***
None of the ingredients is listed.

SECTION 12: Ecological information

· ***12.1 Toxicity***
· ***Aquatic toxicity:*** *No further relevant information available.*
· ***12.2 Persistence and degradability*** *No further relevant information available.*
· ***Method***
· ***Ecological information*** *Not available*
· ***12.3 Bioaccumulative potential*** *No further relevant information available.*
· ***12.4 Mobility in soil*** *No further relevant information available.*
· ***12.5 Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable*
· ***vPvB:*** *Not applicable*
· ***12.6 Endocrine disrupting properties***
The product does not contain substances with endocrine disrupting properties.
· ***12.7 Other adverse effects***
· ***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.
Danger to drinking water if even small quantities leak into the ground.

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.
Reutilise if possible or contact a waste processors for recycling or safe disposal.
· ***Waste disposal key:***
The European Union does not establish uniform rules for the disposal of chemical waste, which are special waste. Their treatment and elimination of the domestic legislation of each country. So, in each case, you should contact the relevant authorities, or those companies legally authorized for elimination of waste.
2014/955/UE: Council Decision of 18 December 2014 amending the list of wastes contained in Decision 2000/532/EC.
Directive 2008/98/EC of the european parliament and of the council of 18 November 2008, in ist latest valid version.

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· **European waste catalogue**	
HP3	Flammable
HP4	Irritant - skin irritation and eye damage
HP5	Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP6	Acute Toxicity

· **Uncleaned packaging:**
The containers and packaging materials contaminated with dangerous substances or preparations, have the same treatment of products.
Directive 94/62/EC of the European Parliament and the Council of 20 December 1994 on packaging and packaging waste.
· **Recommendation:**
Disposal must be made according to official regulations.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

SECTION 14: Transport information

· **14.1 UN number or ID number**	
· **ADR/RID, IMDG, IATA**	UN1307
· **14.2 UN proper shipping name**	
· **ADR/RID**	1307 XYLENES
· **IMDG**	XYLENES
· **IATA**	Xylenes
· **14.3 Transport hazard class(es)**	
· **ADR/RID**	



· **Class**	3 (F1) Flammable liquids.
· **Label**	3
· **IMDG, IATA**	



· **Class**	3 Flammable liquids.
· **Label**	3
· **14.4 Packing group**	
· **ADR/RID, IMDG, IATA**	III
· **14.5 Environmental hazards:**	Not applicable
· **14.6 Special precautions for user**	Warning: Flammable liquids.
· **Hazard identification number (Kemler code):**	30
· **EMS Number:**	F-E,S-D
· **Stowage Category**	A
· **14.7 Maritime transport in bulk according to IMO instruments**	Not applicable

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· **Transport/Additional information:**

· **ADR/RID**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **Transport category**	3
· **Tunnel restriction code**	D/E
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **UN "Model Regulation":**	UN 1307 XYLENES, 3, III

SECTION 15: Regulatory information

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

· **SARA Section 355 (extremely hazardous substances)**

None of the ingredients is listed.

· **SARA Section 313 (specific toxic chemical listings)**

CAS: 1330-20-7	xylene, mixed isomers
CAS: 100-41-4	ethylbenzene

· **Prop 65 - Chemicals known to cause cancer**

CAS: 100-41-4	ethylbenzene

· **Directive 2012/18/EU**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.
· **Seveso category** P5c FLAMMABLE LIQUIDS
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t

· **REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)**

None of the ingredients is listed.

· **LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)**

None of the ingredients is listed.

· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

· **REGULATION (EU) 2024/590 on substances that deplete the ozone layer**

None of the ingredients is listed.

· **National regulations:**

· **Technical instructions (air):**

Class	Share in %
NK	50-100

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· ***Waterhazard class:*** *Water hazard class 2 (Self-assessment): hazardous for water.*

· ***Other regulations, limitations and prohibitive regulations***
874.2 g/l
93.00 %

· ***Substances of very high concern (SVHC) according to REACH, Article 57***

None of the ingredients is listed.

· ***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***
H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H372 Causes damage to organs through prolonged or repeated exposure.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
· ***Department issuing SDS:*** *Q.A./Normative*
· ***Date of previous version:*** *18.04.2021*
· ***Version number of previous version:*** *12*
· ***Abbreviations and acronyms:***
RCR : Risk Characterisation Ratio
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
ATE: Acute toxicity estimate values
Flam. Liq. 2: Flammable liquids – Category 2
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

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· ***Sources***

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006, REACH, in the latest valid version.
Regulation (EC) N° 1272/2008 of the European Parliament and of the Council of 16 December 2008, CLP, in the latest valid version.
Globally Harmonized System, GHS
ADR/RID, IMDG, IATA
PubChem : an open chemistry database at the National Institutes of Health (NIH)
ECHA : European CHemicals Agency
GESTIS : Information system on hazardous substances of the German Social Accident Insurance

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