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	Revision Date: 28.05.2014
SAFETY DATA SHEET	Print Date: 08.08.2014
Derakane Momentum™ 470-300 epoxy vinyl ester resin ™ Trademark, Ashland or its subsidiaries, registered in various countries 675845	MSDS Number: R0402387 Version: 5.0

Conforms to EU Regulation 1907/2006/EC as amended. - SDSCLP_GB

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

1.1 Product identifier

Trade name : Derakane Momentum™ 470-300
epoxy vinyl ester resin
™ Trademark, Ashland or its subsidiaries, registered in various countries

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

Use of the Substance/Mixture : Reserved for industrial and professional use.

1.3 Details of the supplier of the safety data sheet Ashland P.O. Box 8619 NL3009 AP, Rotterdam Netherlands EUSMT@ashland.com	1.4 Emergency telephone number 00-800-274-5263-3/001-606-329-5701 , or contact your local emergency telephone number at 112 Product Information +31 10 497 5000 (in the Netherlands), or contact your local CSR contact person
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

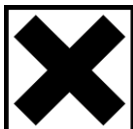
Flammable	R10: Flammable.
Harmful	R20: Harmful by inhalation.
	R48/20: Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Irritant	R36/37/38: Irritating to eyes, respiratory system and skin.

2.2 Label elements

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

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Hazard symbols :



Harmful

R-phrases :

R10 Flammable.
R20 Harmful by inhalation.
R36/37/38 Irritating to eyes, respiratory system and skin.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

S-phrases :

S16 Keep away from sources of ignition - No smoking.
S23 Do not breathe vapour.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39 Wear suitable gloves and eye/face protection.
S51 Use only in well-ventilated areas.
S43 In case of fire, use foam, carbon dioxide (CO2), Water spray, dry chemical.

Hazardous components which must be listed on the label:

100-42-5 Styrene

2.3 Other hazards

Assessment : PBT substance , vPvB substance - not determined

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Static Accumulator

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
Styrene	100-42-5 202-851-5 01-2119457861-32-xxxx	R10 Xn; R20 Xi; R36/37/38	Flam. Liq. 3; H226 Acute Tox. 4; H332 Skin Irrit. 2; H315	>= 25 - < 40

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	01-2119457861-32-0151	Xn; R48/20 Xn; R65	Eye Irrit. 2; H319 STOT SE 3; H335 STOT RE 1; H372 Asp. Tox. 1; H304	
Methacrylic acid	79-41-4 201-204-4	Xn; R21/22 C; R35	Acute Tox. 4; H302 Acute Tox. 3; H311 Skin Corr. 1A; H314	>= 1 - < 2,5
Tetramethylammonium chloride	75-57-0 200-880-8	Xi; R36/37/38 T; R25 T; R24	Acute Tox. 3; H301 Acute Tox. 3; H311 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335	>= 0,1 - < 0,5

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.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Consult a physician.
Show this safety data sheet to the doctor in attendance.
- If inhaled : Move to fresh air.
Consult a physician after significant exposure.
If symptoms persist, call a physician.
In case of shortness of breath, give oxygen.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off immediately with plenty of water.
If skin irritation persists, call a physician.
- In case of eye contact : Hold eyelids apart and flush eyes with plenty of water for at
least 15 minutes. Get medical attention.
Remove contact lenses.
- If swallowed : Do not induce vomiting without medical advice.
Never give anything by mouth to an unconscious person.
Consult a physician if necessary.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms :

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Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:
 stomach or intestinal upset (nausea, vomiting, diarrhea)
 irritation (nose, throat, airways)
 central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects
 Lack of coordination
 confusion
 liver damage

Risks : No data available

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No hazards which require special first aid measures.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Dry chemical
 Carbon dioxide (CO2)
 Foam
 Water spray

Unsuitable extinguishing media : Halons
 High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Do not use a solid water stream as it may scatter and spread fire.
 Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : carbon dioxide and carbon monoxide
 Hydrocarbons

5.3 Advice for firefighters

Special protective equipment : In the event of fire, wear self-contained breathing apparatus.

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for firefighters Use personal protective equipment.

Further information : Keep containers and surroundings cool with water spray.
Prevent fire extinguishing water from contaminating surface water or the ground water system.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
Pay attention to the spreading of gases especially at ground level (heavier than air) and to the direction of the wind.

6.2 Environmental precautions

Environmental precautions : Prevent further leakage or spillage if safe to do so.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

No data available

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapours or spray mist.
Avoid contact with skin and eyes.
For personal protection see section 8.
Provide sufficient air exchange and/or exhaust in work rooms.
Avoid exceeding of the given occupational exposure limits (see section 8).
Smoking, eating and drinking should be prohibited in the application area.
Ensure all equipment is electrically grounded and bonded

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before beginning transfer operations.

Advice on protection against fire and explosion : Take measures to prevent the build up of electrostatic charge. Mixture may charge electrostatically: always use earthing leads when transferring from one container to another. Keep product and empty container away from heat and sources of ignition. No sparking tools should be used. Avoid formation of aerosol.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place.

Other data : Stable under recommended storage conditions.

7.3 Specific end use(s)

No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components	CAS-No.	Value type	Form of Exposure	Control parameters	Update	Basis
Styrene	100-42-5	TWA		100 ppm 430 mg/m ³	2007	EH40 WEL
Further information:						
Styrene	100-42-5	STEL		250 ppm 1.080 mg/m ³	2007	EH40 WEL
Methacrylic acid	79-41-4	TWA		20 ppm 72 mg/m ³	2007	EH40 WEL
Methacrylic acid	79-41-4	STEL		40 ppm 143 mg/m ³	2007	EH40 WEL

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DNEL

Styrene	: End Use: Workers Exposure routes: Inhalation Potential health effects: Short-term exposure, Systemic effects Value: 289 mg/m3
Styrene	: End Use: Workers Exposure routes: Inhalation Potential health effects: Short-term exposure, Local effects Value: 306 mg/m3
Styrene	: End Use: Workers Exposure routes: Inhalation Potential health effects: Long-term exposure, Systemic effects Value: 85 mg/m3
Styrene	: End Use: Workers Exposure routes: Skin contact Potential health effects: Long-term exposure, Systemic effects Value: 406 mg/kg
Styrene	: End Use: Consumers Exposure routes: Inhalation Potential health effects: Short-term exposure, Systemic effects Value: 174,25 mg/m3
Styrene	: End Use: Consumers Exposure routes: Inhalation Potential health effects: Short-term exposure, Local effects Value: 182,75 mg/m3
Styrene	: End Use: Consumers Exposure routes: Skin contact Potential health effects: Long-term exposure, Systemic effects Value: 343 mg/kg
Styrene	: End Use: Consumers Exposure routes: Ingestion Potential health effects: Long-term exposure, Systemic effects Value: 2,1 mg/kg
Styrene	: End Use: Consumers Exposure routes: Inhalation Potential health effects: Long-term exposure, Systemic effects Value: 10,2 mg/m3

8.2 Exposure controls

Engineering measures

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Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below level of overexposure (from known, suspected or apparent adverse effects).

Personal protective equipment

- Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. In the case of vapour formation use a respirator with an approved filter.
- Hand protection : Wear resistant gloves such as:
Polyvinyl alcohol or nitrile- butyl-rubber gloves
- Eye protection : Safety glasses with side-shields
- Skin and body protection : Wear as appropriate:
Safety shoes
Flame-resistant clothing
- Hygiene measures : Keep away from food, drink and animal feedingstuffs. When using do not eat, drink or smoke. Ensure that eyewash stations and safety showers are close to the workstation location.

Environmental exposure controls

- General advice : Prevent further leakage or spillage if safe to do so.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Appearance : liquid
- Colour : No data available
- Odour : pungent
- Odour Threshold : No data available
- pH : not applicable
- Freezing point / Melting point : No data available
- Boiling point : 145 °C; Calculated Phase Transition Liquid/Gas
- Flash point : 29,4 °C; Seta closed cup

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Evaporation rate : No data available
 Flammability (solid, gas) : No data available
 Burning rate : No data available
 Lower explosion limit : 1,1 %(V); GLP: Calculated Explosive Limit

 Upper explosion limit : 6,1 %(V); GLP: Calculated Explosive Limit

 Vapour pressure : 8,53248 hPa; 25 °C; Calculated Vapor Pressure

 Relative vapour density : > 1; AIR=1

 Relative density : No data available
 Density : 1,078 g/cm³; 20 °C

 Water solubility : insoluble

 Solubility in other solvents : No data available
 Partition coefficient: n-octanol/water : No data available
 Auto-ignition temperature : 490 °C

 Ignition temperature : No data available
 Thermal decomposition : No data available
 Viscosity, dynamic : No data available
 Viscosity, kinematic : > 20,5 mm²/s; 40 °C

 Explosive properties : No data available
 Oxidizing properties : No data available

9.2 Other information

Bulk density : No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity

Hazardous polymerisation may occur.
Vapours may form explosive mixture with air.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Further information: Stable under recommended storage conditions.

: Hazardous polymerisation may occur.
Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : temperature extremes
Heat, flames and sparks.
Exposure to air.
Exposure to sunlight.

10.5 Incompatible materials

Materials to avoid : Acids
aluminum
aluminum chloride
Amines
Bases
Copper
Copper alloys
halogens
iron chloride
metal salts
Oxidizing agents
Peroxides

10.6 Hazardous decomposition products

Hazardous decomposition products : carbon dioxide and carbon monoxide
Hydrocarbons

SECTION 11: Toxicological information

11.1 Information on toxicological effects

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Product

- Acute oral toxicity : No data available
- Acute inhalation toxicity : No data available
- Acute dermal toxicity : No data available
- Skin corrosion/irritation : No data available
- Serious eye damage/eye irritation : No data available
- Respiratory or skin sensitisation : No data available
- STOT - repeated exposure : Target Organs: Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:; mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects
Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:; liver damage,
Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:; mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects
- Aspiration toxicity : The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Components:

Styrene :

- Acute oral toxicity : LD 50: 2.650 mg/kg, Rat
- Acute inhalation toxicity : LC 50: 2800 ppm, 4 h, Rat, vapour
- Acute dermal toxicity : LD 50: > 2.000 mg/kg, Rat, OECD Test Guideline 402, The substance or mixture has no acute dermal toxicity
- STOT - single exposure : Assessment: May cause respiratory irritation.

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Further information : Central nervous system

Methacrylic acid :

Acute oral toxicity : LD 50: 1.320 mg/kg, Rat(male), OECD Test Guideline 401

Acute inhalation toxicity : LD 50: 7,1 mg/l, 4 h, Rat, Aerosol

Acute dermal toxicity : LD 50: 500 - 1.000 mg/kg, Rabbit

Tetramethylammonium chloride :

Acute oral toxicity : LD 50: 50 mg/kg, Rat

Acute dermal toxicity : LD50: 527 mg/kg, Rat

SECTION 12: Ecological information

12.1 Toxicity

Product:

No data available

Components:

Styrene:

Toxicity to fish : LC 50: 4,02 mg/l, 96 h, Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates : EC 50: 4,7 mg/l, 48 h, Water flea (Daphnia magna)

Toxicity to algae : EC 50: > 4,9 mg/l, 72 h, Pseudokirchneriella subcapitata (green algae)

Toxicity to bacteria : EC 50: ca. 500 mg/l, 0,5 h, activated sludge

Toxicity to daphnia and other aquatic invertebrates : NOEC: 1,01 mg/l, 21 d, Water flea (Daphnia magna)

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(Chronic toxicity)

Tetramethylammonium chloride:

Toxicity to fish : LC 50: 462 mg/l, 96 h, Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates : LC 50: 55,6 mg/l, 48 h, Water flea (Daphnia magna)

12.2 Persistence and degradability

Product:

No data available

Components:

Styrene :

Biodegradability : Readily biodegradable

12.3 Bioaccumulative potential

Product:

Bioaccumulation : The bioaccumulation potential cannot be determined.

Components:

No data available

12.4 Mobility in soil

Product:

No data available

Components:

No data available

12.5 Results of PBT and vPvB assessment

Product:

No data available

Components:

No data available

12.6 Other adverse effects

Product:

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No data available

Components:

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- Product : Dispose of in accordance with the European Directives on waste and hazardous waste.
- : Do not contaminate ponds, waterways or ditches with chemical or used container.
Container hazardous when empty.
Dispose of in accordance with local regulations.
- Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

14.1 UN number

ADR: UN1866

ADNR: UN1866

RID: UN1866

INTERNATIONAL MARITIME DANGEROUS GOODS: UN1866

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: UN1866

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: UN1866

14.2 UN proper shipping name

ADR: RESIN SOLUTION

ADNR: RESIN SOLUTION

RID: RESIN SOLUTION

INTERNATIONAL MARITIME DANGEROUS GOODS: RESIN SOLUTION

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Resin solution

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Resin solution

14.3 Transport hazard class(es)

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ADR: 3
ADNR: 3
RID: 3
INTERNATIONAL MARITIME DANGEROUS GOODS: 3
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: 3
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: 3

14.4 Packing group

ADR: III
ADNR: III
RID: III
INTERNATIONAL MARITIME DANGEROUS GOODS: III
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: III
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: III

14.5 Environmental hazards

ADR: not applicable
ADNR: not applicable
RID: not applicable
INTERNATIONAL MARITIME DANGEROUS GOODS: not applicable
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: not applicable
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: not applicable

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Ship Type: Not applicable
Hazard code(s): Not applicable
Pollutant Category: Not applicable

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15: Regulatory information

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

Seveso II - Directive 2003/105/EC amending Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances

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Hazard class	Number	Quantity 1	Quantity 2
Flammable.	6	5.000 t	50.000 t

Notification status

US. Toxic Substances Control Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	q (quantity restricted)
Australia. Industrial Chemical (Notification and Assessment) Act	y (positive listing)
Japan. Kashin-Hou Law List	y (positive listing)
Korea. Toxic Chemical Control Law (TCCL) List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	n (Negative listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

15.2 Chemical Safety Assessment

No data available

SECTION 16: Other information

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

R10	Flammable.
R20	Harmful by inhalation.
R21/22	Harmful in contact with skin and if swallowed.
R24	Toxic in contact with skin.
R25	Toxic if swallowed.
R35	Causes severe burns.
R36/37/38	Irritating to eyes, respiratory system and skin.
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R65	Harmful: may cause lung damage if swallowed.

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

H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H302	Harmful if swallowed.

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H304	May be fatal if swallowed and enters airways.
H311	Toxic 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.
H335	May cause respiratory irritation.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.

Further information

Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Ashland's Environmental Health and Safety Department (+31 10 497 5000).

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :

ACGIH : American Conference of Industrial Hygienists
 BEI : Biological Exposure Index
 CAS : Chemical Abstracts Service (Division of the American Chemical Society).
 CMR : Carcinogenic, Mutagenic or Toxic for Reproduction
 FG : Food grade
 GHS : Globally Harmonized System of Classification and Labeling of Chemicals.
 H-statement : Hazard Statement
 IATA : International Air Transport Association.
 IATA-DGR : Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

ICAO : International Civil Aviation Organization
 ICAO-TI (ICAO) : Technical Instructions by the "International Civil Aviation Organization"
 IMDG : International Maritime Code for Dangerous Goods
 ISO : International Organization for Standardization
 logPow : octanol-water partition coefficient
 LCxx : Lethal Concentration, for xx percent of test population
 LDxx : Lethal Dose, for xx percent of test population.
 ICxx : Inhibitory Concentration for xx of a substance
 Ecxx : Effective Concentration of xx
 N.O.S.: Not Otherwise Specified
 OECD : Organization for Economic Co-operation and Development
 OEL : Occupational Exposure Limit
 P-Statement : Precautionary Statement
 PBT : Persistent , Bioaccumulative and Toxic

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PPE : Personal Protective Equipment
 STEL : Short-term exposure limit
 STOT : Specific Target Organ Toxicity
 TLV : Threshold Limit Value
 TWA : Time-weighted average
 vPvB : Very Persistent and Very Bioaccumulative
 WEL : Workplace Exposure Level
 ABM : Water Hazard Class for the Netherlands
 ADR : Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADNR: Regulation for the Carriage of Dangerous Substances on the Rhine
 CLP : Classification, Labelling and Packaging
 CSA : Chemical Safety Assessment
 CSR : Chemical Safety Report
 DNEL : Derived No Effect Level.
 EINECS : European Inventory of Existing Commercial Chemical Substances.
 ELINCS : European List of Notified Chemical Substances
 PEC : Predicted Effect Concentration
 PEL : Permissible Exposure Limits
 PNEC : Predicted No Effect Concentration
 R-phrase : Risk phrase
 REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals
 RID : Regulation Concerning the International Transport of Dangerous Goods by Rail
 S-phrase: Safety phrase
 WGK : German Water Hazard Class