SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.4
Revision Date 02.09.2023
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GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

1.1 Product identifiers

Product name : Anti-Klf2

Product Number : SAB2108355
Brand : Sigma
REACH No. :

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Merck Life Science Sp. z o.o
Pastelowa 8
PL-60-198 POZNAN

Telephone : +48 61 8290-100
Fax : +48 61 8290-120
E-mail address : TechnicalService@merckgroup.com

1.4 Emergency telephone

Emergency Phone # : +(48)-223988029 (CHEMTREC) 112
(numer alarmowy)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

2.2 Label elements

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:

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The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Nature of decomposition products not known.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid breathing vapors, mist or gas.
For personal protection see section 8.

6.2 Environmental precautions
No special environmental precautions required.

6.3 Methods and materials for containment and cleaning up
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Storage stability
Recommended storage temperature
-20 °C

Storage class
Storage class (TRGS 510): 10: Combustible liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

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The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Body Protection
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
No special environmental precautions required.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Physical state	liquid
b)	Color	No data available
c)	Odor	No data available
d)	Melting point/freezing point	No data available
e)	Initial boiling point and boiling range	No data available
f)	Flammability (solid, gas)	No data available
g)	Upper/lower flammability or explosive limits	No data available
h)	Flash point	No data available
i)	Autoignition temperature	No data available
j)	Decomposition temperature	No data available
k)	pH	No data available
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m)	Water solubility	No data available
n)	Partition coefficient: n-octanol/water	No data available
o)	Vapor pressure	No data available

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p)	Density	No data available
	Relative density	No data available
q)	Relative vapor density	No data available
r)	Particle characteristics	No data available
s)	Explosive properties	Not classified as explosive.
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Mixture

Acute toxicity
LD50 Oral - Rat - > 90.000 mg/kg (water)
Remarks: (RTECS)
Oral: No data available
LD50 Oral - Rat - 29.700 mg/kg (Saccharose)
Remarks: Behavioral:Somnolence (general depressed activity).
Cyanosis
Diarrhea
(RTECS)

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LD50 Oral - Rat - female - > 2.000 mg/kg (disodium hydrogen orthophosphate)
(OECD Test Guideline 420)
LD50 Oral - Rat - 27 mg/kg (sodium azide)
Remarks: (RTECS)
LD50 Oral - Rat - female - > 2.000 mg/kg (dihydrogen potassium phosphate)
(OECD Test Guideline 420)
Remarks: The value is given in analogy to the following substances: dipotassium hydrogen phosphate
LD50 Oral - Rat - female - 3.020 mg/kg (potassium chloride)
Remarks: (ECHA)
LC50 Inhalation - Rat - male and female - 4 h - > 0,83 mg/l - dust/mist
(disodium hydrogen orthophosphate)
(OECD Test Guideline 403)
LC50 Inhalation - Rat - male and female - 4 h - 0,054 - 0,52 mg/l - dust/mist
(sodium azide)
(US-EPA)
LC50 Inhalation - Rat - male and female - 4 h - > 0,83 mg/l - dust/mist
(dihydrogen potassium phosphate)
(OECD Test Guideline 403)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances: sodium dihydrogen phosphate
LD50 Dermal - Rabbit - > 10.000 mg/kg (sodium chloride)
Remarks: (RTECS)
LD50 Dermal - Rat - male and female - > 2.000 mg/kg (disodium hydrogen orthophosphate)
(OECD Test Guideline 402)
LD50 Dermal - Rabbit - 20 mg/kg (sodium azide)
Remarks: (RTECS)
LD50 Dermal - Rabbit - male and female - > 2.000 mg/kg (dihydrogen potassium phosphate)
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit (sodium chloride)
Result: No skin irritation
Remarks: (ECHA)
Skin - Rabbit (disodium hydrogen orthophosphate)
Result: No skin irritation - 24 h
(OECD Test Guideline 404)
Skin - In vitro study (sodium azide)
Result: No skin irritation
(OECD Test Guideline 439)
Skin - Rabbit (dihydrogen potassium phosphate)
Result: No skin irritation - 4 h
(Draize Test)
Remarks: (ECHA)

Serious eye damage/eye irritation
Eyes - Rabbit (sodium chloride)
Result: No eye irritation
Remarks: (ECHA)
Eyes - Rabbit (disodium hydrogen orthophosphate)
Result: No eye irritation - 30 s

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(OECD Test Guideline 405)
Eyes - Bovine cornea (sodium azide)
Result: No eye irritation - 4 h
(OECD Test Guideline 437)
Eyes - Rabbit (dihydrogen potassium phosphate)
Result: No eye irritation - 30 s
(Draize Test)
Remarks: (ECHA)
Remarks: No data available

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse (disodium hydrogen orthophosphate)
Result: negative
(OECD Test Guideline 429)
Local lymph node assay (LLNA) - Mouse (sodium azide)
Result: negative
(OECD Test Guideline 429)
No data available

Germ cell mutagenicity
Animal testing did not show any mutagenic effects. (sodium chloride
Test Type: Ames test
(sodium chloride)
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: Mutagenicity (mammal cell test):
(Saccharose)
Result: negative
Remarks: (National Toxicology Program)
Test Type: Micronucleus test
(disodium hydrogen orthophosphate)
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: negative
Test Type: In vitro mammalian cell gene mutation test
(disodium hydrogen orthophosphate)
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Result: negative
Remarks: (ECHA)
Test Type: Chromosome aberration test in vitro
(disodium hydrogen orthophosphate)
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
(sodium azide)
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation

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Method: OECD Test Guideline 473
Result: negative
Test Type: unscheduled DNA synthesis assay
(sodium azide)
Test system: Chinese hamster lung cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 482
Result: negative
Test Type: sister chromatid exchange assay
(sodium azide)
Test system: Chinese hamster ovary cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 479
Result: negative
Test Type: Micronucleus test
(dihydrogen potassium phosphate)
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: negative
Test Type: In vitro mammalian cell gene mutation test
(dihydrogen potassium phosphate)
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Result: negative
Remarks: (ECHA)
Test Type: Ames test
(potassium chloride)
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Remarks: (ECHA)
Test Type: In vitro mammalian cell gene mutation test
(potassium chloride)
Test system: mouse lymphoma cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Remarks: (ECHA)
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
(potassium chloride)
Test system: Chinese hamster lung cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: positive
Remarks: (ECHA)

Carcinogenicity
Did not show carcinogenic effects in animal experiments. (sodium chloride)

Reproductive toxicity
Did not show teratogenic effects in animal experiments. (sodium chloride)

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No impairment of reproductive performance suspected. (sodium chloride)
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Oral - May cause damage to organs through prolonged or repeated exposure.
- Brain

Aspiration hazard
No data available

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Repeated dose toxicity - Rat - male - Oral - 2 yr - NOAEL (No observed adverse effect level) - 1.820 mg/kg - LOAEL (Lowest observed adverse effect level) - 110 mg/kg
Remarks: (ECHA)
(potassium chloride)
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (water)

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (Rabbit protein)

Vomiting, Diarrhea, Dehydration and congestion may occur in internal organs. Hypertonic salt solutions can produce inflammatory reactions in the gastrointestinal tract., Nausea (sodium chloride)
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (sodium chloride)

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (Saccharose)

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (disodium hydrogen orthophosphate)

Nausea, Headache, Vomiting, Laboratory experiments in animals have shown sodium azide to produce a profound hypotensive effect, demyelination of myelinated nerve fibers in the central nervous system, testicular damage, blindness, attacks of rigidity, and hepatic and cerebral effects., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (sodium azide)

irritant effects, Discomfort, Nausea, Diarrhea, Vomiting, gastric pain (dihydrogen potassium phosphate)

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To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (dihydrogen potassium phosphate)

hyperkalemia, Nausea, Vomiting, Abdominal pain, Diarrhea, Constipation., Paresthesia., Thirst, Dizziness, Rash, pruritus, Weakness, muscle cramps, minor psychiatric changes, minor visual changes (potassium chloride)
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (potassium chloride)

Substances which occur in nature
(Saccharose)
Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.
(Saccharose)
Handle in accordance with good industrial hygiene and safety practice.
(Saccharose)

However, when the product is handled appropriately, hazardous effects are unlikely to occur.
(disodium hydrogen orthophosphate)
Handle in accordance with good industrial hygiene and safety practice.
(disodium hydrogen orthophosphate)

Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.
(dihydrogen potassium phosphate)
Inhalation of the dusts should be avoided as even inert dusts may impair respiratory organ functions.
(dihydrogen potassium phosphate)
Handle in accordance with good industrial hygiene and safety practice.
(dihydrogen potassium phosphate)

SECTION 12: Ecological information

12.1 Toxicity

Mixture

Toxicity to fish	flow-through test LC50 - Lepomis macrochirus (Bluegill) - 5.840 mg/l - 96 h (sodium chloride) Remarks: (ECHA)
Toxicity to fish	semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - > 100 mg/l - 96 h (disodium hydrogen orthophosphate) (OECD Test Guideline 203)
Toxicity to fish	flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 2,75 mg/l - 96 h (sodium azide) (OECD Test Guideline 203)
Toxicity to fish	semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - > 100 mg/l - 96 h (dihydrogen potassium phosphate) (OECD Test Guideline 203)

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Toxicity to fish	static test LC50 - Pimephales promelas (fathead minnow) - 880 mg/l - 96 h (potassium chloride) (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 874 mg/l - 48 h (sodium chloride) Remarks: (ECHA)
	static test LC50 - Daphnia magna (Water flea) - 4.136 mg/l - 48 h (sodium chloride) (OECD Test Guideline 202)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (disodium hydrogen orthophosphate) (OECD Test Guideline 202)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (dihydrogen potassium phosphate) (OECD Test Guideline 202)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 440 - 880 mg/l - 48 h (potassium chloride) (OECD Test Guideline 202)
Toxicity to algae	static test EC50 - Nitzschia sp. - 2.430 mg/l - 120 h (sodium chloride) (OECD Test Guideline 201)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h (disodium hydrogen orthophosphate) (OECD Test Guideline 201)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata - 0,35 mg/l - 96 h (sodium azide) (OECD Test Guideline 201)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h (dihydrogen potassium phosphate) (OECD Test Guideline 201)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h (potassium chloride) (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - activated sludge - > 1.000 mg/l - 3 h (disodium hydrogen orthophosphate) (OECD Test Guideline 209)
Toxicity to bacteria	
Toxicity to bacteria	static test EC50 - activated sludge - > 1.000 mg/l - 3 h (dihydrogen potassium phosphate) (OECD Test Guideline 209)
	static test NOEC - activated sludge - > 1.000 mg/l - 3 h (dihydrogen potassium phosphate) (OECD Test Guideline 209)

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Toxicity to bacteria	static test EC50 - activated sludge - > 1.000 mg/l - 3 h (potassium chloride) (OECD Test Guideline 209)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Pimephales promelas (fathead minnow) - 252 mg/l - 33 d (sodium chloride) (OECD Test Guideline 210)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia pulex (Water flea) - 314 mg/l - 21 d (sodium chloride) (OECD Test Guideline 211)

12.2 Persistence and degradability

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

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No ecological problems are to be expected when the product is handled and used with due care and attention.
Discharge into the environment must be avoided.
Discharge into the environment must be avoided.
No data available

Components

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: - IMDG: - IATA: -

14.4 Packaging group
ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user
No data available
Further information
Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

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SECTION 16: Other information

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

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