



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

1.1 Product identifier

Trade name: **Duroval Chlorid Titrationslösung**

UFI: SDGE-DH9E-VC0W-7M8K

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

No further relevant information available.

Application of the substance / the preparation:

Reagent for analysis

EuPCS: PC-TEC-19 Reagents and laboratory chemical

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Gebrüder Heyl

Analystechnik GmbH & Co. KG

Orleansstraße 75 b

D-31135 Hildesheim

Phone +49 (0) 5121 2893390

Fax +49 (0) 5121 2893367

E-mail info@heylanalysis.de

Internet www.heylanalysis.de

Further information obtainable from: product safety department

1.4 Emergency telephone number:

Giftinformationszentrum Nord

Phone +49 (0) 551 19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS06 skull and crossbones

Acute Tox. 3

H311 Toxic in contact with skin.

Acute Tox. 3

H331 Toxic if inhaled.



GHS08 health hazard

STOT RE 2

H373 May cause damage to organs through prolonged or repeated exposure.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

Hazard pictograms



GHS06 GHS08

Signal word **Danger**

Hazard-determining components of labelling:

mercury dinitrate

nitric acid

Hazard statements

H311+H331 Toxic in contact with skin or if inhaled.

H373

May cause damage to organs through prolonged or repeated exposure.

H412

Harmful to aquatic life with long lasting effects.

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· **Precautionary statements**

- P260 Do not breathe mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
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.
P307+P311 IF exposed: Call a POISON CENTER or doctor/physician.

· **Labelling of packages where the contents do not exceed 125 ml**

· **Hazard pictograms**



GHS06 GHS08

· **Signal word** Danger

· **Hazard-determining components of labelling:**

mercury dinitrate
nitric acid

· **Hazard statements**

H311+H331 Toxic in contact with skin or if inhaled.
H412 Harmful to aquatic life with long lasting effects.

· **Precautionary statements**

- P260 Do not breathe mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
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P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307+P311 IF exposed: Call a POISON CENTER or doctor/physician.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**

· **Description:**

Mixture of substances listed below with nonhazardous additions according to Regulation (EC) No 1272/2008.

Water CAS 7732-18-5

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· Dangerous components:

<p>CAS: 10045-94-0 EINECS: 233-152-3 Index number: 080-002-00-6</p>	<p>mercury dinitrate Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 STOT RE 2, H373 Aquatic Acute 1, H400; Aquatic Chronic 1, H410 Specific concentration limit: STOT RE 2; H373: C ≥ 0.1 %</p>	<p>≥ 0.25 – ≤ 1%</p>
<p>CAS: 7697-37-2 EINECS: 231-714-2 Index number: 007-004-00-1 Reg.nr.: 01-2119487297-23</p>	<p>nitric acid Ox. Liq. 2, H272 Acute Tox. 1, H330 Skin Corr. 1A, H314 EUH071 Specific concentration limits: Ox. Liq. 2; H272: C ≥ 99% Ox. Liq. 3; H272: 70 % ≤ C < 99 %</p>	<p>< 1%</p>

· **SVHC** Not applicable.

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· 4.1 Description of first aid measures

· **General information:** Immediately remove any clothing soiled by the product.

· **After inhalation:**

Supply fresh air.

Call a doctor immediately.

In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

Call a doctor immediately.

· **After eye contact:**

Rinse opened eye for several minutes under running water.

Call a doctor immediately.

· **After swallowing:**

A person vomiting while laying on their back should be turned onto their side.

Rinse out mouth and then drink plenty of water.

Induce vomiting only, if affected person is fully conscious.

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:** Use fire extinguishing methods suitable to surrounding conditions.

· **5.2 Special hazards arising from the substance or mixture**

Formation of toxic gases is possible during heating or in case of fire.

· **5.3 Advice for firefighters**

· **Protective equipment:** Wear self-contained respiratory protective device.

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SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
 Wear personal protection equipment.
- **6.2 Environmental precautions:**
 Inform respective authorities in case of seepage into water course or sewage system.
 Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
 Ensure adequate ventilation.
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
 Dispose of the material collected according to regulations.
 Clean the affected area carefully; suitable cleaners are:
 Warm water
- **6.4 Reference to other sections**
 See Section 7 for information on safe handling.
 See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
 Ensure good ventilation/exhaustion at the workplace.
 Open and handle receptacle with care.
 Prevent formation of aerosols.
- **Information about fire - and explosion protection:** Keep respiratory protective device available.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:**
 Keep container tightly sealed.
 Protect from heat and direct sunlight.
 Store receptacle in a well ventilated area.
 Store under lock and key and with access restricted to technical experts or their assistants only.
- **Recommended storage temperature:** 15 - 25 °C
- **Storage class:**
 Storage class 6.1D: Non-combustible substances of acute toxicity, category 3/hazardous substances that are toxic or produce chronic effects (TRGS 510)
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

CAS: 10045-94-0 mercury dinitrate

AGW (Germany)	Long-term value: 0.02 E mg/m ³ 8(II);EU,DFG,10,H, Sh
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CAS: 7697-37-2 nitric acid

AGW (Germany)	Long-term value: 2.6 mg/m ³ , 1 ppm EU, 13, 16
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· **Regulatory information AGW (Germany):** TRGS 900

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· Ingredients with biological limit values:

CAS: 10045-94-0 mercury dinitrate

BGW (Germany)	25 µg/g Kreatinin Untersuchungsmaterial: Urin Probennahmezeitpunkt: keine Beschränkung Parameter: Quecksilber
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· Regulatory information BGW (Germany): TRGS 903

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

· 8.2 Exposure controls

· Appropriate engineering controls No further data; see item 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.

Avoid contact with the eyes and skin.

Do not eat, drink, smoke or sniff while working.

· Respiratory protection:

Use suitable respiratory protective device when aerosol or mist is formed. Filter: Type Hg-P3

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.

· Hand protection



Protective gloves

Wear gloves according to EN 374.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Check protective gloves prior to each use for their proper condition.

Preventive skin protection by use of skin-protecting agents is recommended.

After use of gloves apply skin-cleaning agents and skin cosmetics.

· 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.

· Penetration time of glove material

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

· For the permanent contact gloves made of the following materials are suitable:

Nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.12 mm

Value for the permeation: Level = 6 (> 480 min)

· As protection from splashes gloves made of the following materials are suitable:

Nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.12 mm

Value for the permeation: Level = 6 (> 480 min)

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· **Eye/face protection**



Tightly sealed goggles according to EN 166

· **Body protection: Protective work clothing**

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· Physical state	Fluid
· Colour:	Colourless
· Odour:	Odourless
· Odour threshold:	Not determined.
· Melting point/freezing point:	Undetermined.
· Boiling point or initial boiling point and boiling range	Undetermined.
· Flammability	Not applicable.
· Lower and upper explosion limit	
· Lower:	Not determined.
· Upper:	Not determined.
· Flash point:	Undetermined.
· Ignition temperature:	Not determined.
· Decomposition temperature:	Not determined.
· pH	Strongly acidic
· Viscosity:	
· Kinematic viscosity	Not determined.
· Dynamic:	Not determined.
· Solubility	
· water:	Fully miscible.
· Partition coefficient n-octanol/water (log value)	Not determined.
· Vapour pressure:	Not determined.
· Density and/or relative density	
· Density at 20 °C:	1.04 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.

· **9.2 Other information**

· **Important information on protection of health and environment, and on safety.**

· Auto-ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product does not present an explosion hazard.
· 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	Void
· Flammable solids	Void

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- **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** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
 To avoid thermal decomposition do not overheat.
- **10.3 Possibility of hazardous reactions** Reacts with metals forming hydrogen.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:**
 Nitrogen oxides
 Mercury

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Toxic in contact with skin or if inhaled.

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

CAS: 10045-94-0 mercury dinitrate

Oral	LD50	26 mg/kg (rat)
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CAS: 7697-37-2 nitric acid

Inhalative	LC50/4 h	2.65 mg/l (rat)
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- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **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** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** May cause damage to organs through prolonged or repeated exposure.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **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.

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- **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**
- **Remark:** Harmful to fish
- **Additional ecological information:**
- **General notes:**
 Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
 Do not allow product to reach ground water, water course or sewage system.
 Danger to drinking water if even small quantities leak into the ground.
 Harmful to aquatic organisms

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.
 Disposal must be made according to official regulations.
- **Uncleaned packaging:**
- **Recommendation:**
 Packagings that may not be cleansed are to be disposed of in the same manner as the product.
 Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

· 14.1 UN number or ID number · ADR, IMDG, IATA	UN3287
· 14.2 UN proper shipping name · ADR · IMDG, IATA	3287 TOXIC LIQUID, INORGANIC, N.O.S. (NITRIC ACID, MERCURIC NITRATE) TOXIC LIQUID, INORGANIC, N.O.S. (NITRIC ACID, MERCURIC NITRATE)
· 14.3 Transport hazard class(es) · ADR, IMDG, IATA	
	
· Class · Label	6.1 Toxic substances. 6.1
· 14.4 Packing group · ADR, IMDG, IATA	III
· 14.5 Environmental hazards: · Marine pollutant:	No
· 14.6 Special precautions for user	Warning: Toxic substances.

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· Hazard identification number (Kemler code):	60
· EMS Number:	F-A,S-A
· Segregation groups	Strong acids, heavy metals and their salts (including their organometallic compounds), mercury and mercury compounds
· Stowage Category	A
· Stowage Code	SW2 Clear of living quarters.
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
· Transport/Additional information:	Void
· ADR	
· 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	2
· Tunnel restriction code	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 3287 TOXIC LIQUID, INORGANIC, N.O.S. (NITRIC ACID, MERCURIC NITRATE), 6.1, III

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **Seveso category H2 ACUTE TOXIC**
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 50 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 18

· **Regulation (EU) No 649/2012**

CAS: 10045-94-0 mercury dinitrate

Annex I Part 1
 Annex I Part 3
 Annex V Part 2

· **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) 2019/1148**

· **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.

· **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.

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· Regulation (EC) No 273/2004 on drug precursors

None of the ingredients is listed.

· Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors

None of the ingredients is listed.

· National regulations:

· Information about limitation of use:

Employment restrictions concerning juveniles must be observed.

Employment restrictions concerning pregnant and lactating women must be observed.

· Technical instructions (air):

Class	Share in %
I	≤ 1

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

· Other regulations, limitations and prohibitive regulations

The product is subject to Annex 2 of the Chemikalienverbotsverordnung (ChemVerbotsV) - requirements in relation to the delivery

· 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

H272 May intensify fire; oxidiser.

H300 Fatal if swallowed.

H310 Fatal in contact with skin.

H314 Causes severe skin burns and eye damage.

H330 Fatal if inhaled.

H373 May cause damage to organs through prolonged or repeated exposure.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

EUH071 Corrosive to the respiratory tract.

· Department issuing SDS: product safety department

· Date of previous version: 09.04.2020

· Version number of previous version: 10

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

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

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)

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

Ox. Liq. 2: Oxidizing liquids – Category 2

Acute Tox. 2: Acute toxicity – Category 2

Acute Tox. 1: Acute toxicity – Category 1

Acute Tox. 3: Acute toxicity – Category 3

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Skin Corr. 1A: Skin corrosion/irritation – Category 1A

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

. * Data compared to the previous version altered.

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