

SAFETY DATA SHEET

It complies with the KDDIK (REGULATION ON REGISTRATION, EVALUATION, AUTHORIZATION AND RESTRICTION OF CHEMICALS), Annex II Regulation on Requirements for the Preparation of Safety Data Sheets published in the Official Gazette No. 30105 dated 23.06.2017

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

1.1 Substance/mixture identity

Product code : K220002
 Product name : Tollens Reagent
 KDDIK reg. no :
 KDDIK reg. name :
 Date of issue / date of Revision : 05-04-2026
 Version : 1.0

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

Relevant identified uses

Laboratory chemical

Uses advised against	Reason
No data available	No data available

1.3 Details of the supplier of the safety data sheet

Manufacturer/ distributor : Yenilab Laboratuvar ve Egitim Gereçleri Kimya San. Tic. Ltd. Sti.
 Çelebiler Mh. Çelebiler Cd. No: 28/2 Adapazari / Sakarya

e-mail address of person responsible for this SDS : info@guvenlikbilgiformu.net

1.4 Emergency telephone number

National advisory body/poison center

Telephone number : T. C. Ministry of Health National Poison Information Center phone number: 114

Supplier

Telephone number : 8503029450 (9:00 AM - 5:00 PM)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

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

Serious eye damage 1, H318 Causes serious eye damage.

Corrosive to metals 1, H290 May be corrosive to metals.

Oxidizing liquids 2, H272 May intensify fire; oxidiser.

Hazardous to the aquatic environment aquatic chronic 3, H412 Harmful to aquatic life with long lasting effects.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements :

H Phrase	Exposure way	
H272 May intensify fire; oxidiser.		
H290 May be corrosive to metals.		
H314 Causes severe skin burns and eye damage.		
H318 Causes serious eye damage.		
H412 Harmful to aquatic life with long lasting effects.		

Precautionary statements

Prevention :

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P220 Keep/Store away from clothing/.../combustible materials.
 P234 Keep only in original container.
 P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 Wash skin thoroughly after handling.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response :

P310 Immediately call a POISON CENTER/doctor/...
 P321 Specific treatment (see ... on this label).
 P363 Wash contaminated clothing before reuse.
 P390 Absorb spillage to prevent material damage.
 P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/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.
 P370+P378 In case of fire: Use ... to extinguish.(CHECK RELEVANT SDS SECTION)

Storage :

P405 Store locked up.
 P406 Store in corrosive resistant/... container with a resistant inner liner.

Disposal :

P501 Dispose of contents/container according to national regulations

Hazardous ingredients :

Ammonia, aqueous solution (25%) , Silver nitrate, Sodium hydroxide

Supplemental label elements :

No data available

Annex XVII Restrictions on the

manufacture, placing on the market and use of hazardous substances, mixtures and articles : No data available

Annex XVII- Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

2.3 Other hazards

Other hazards which do not result in classification : No data available

SECTION 3: Composition/information on ingredients

Substance/mixture : Mixture

PRODUCT/INGREDIENT SUBSTANCE NAME	IDENTIFIER NAME	INDETIFIER NUMBER	%	CLASSIFICATION REGULATION (EC) NO. 1272/2008 [CLP(SEA)]	H PHRASES	TYPE/NOTE/M FACTORS, SCL
Ammonia, aqueous solution	CAS NO	1336-21-6	5	Skin Corr. 1B	H314 Causes severe skin burns and eye damage.	[1] Substance classified with a health or environmental hazard. Not = M (Acute) = M (Chronic) = Oksd = C = 5 % STOT SE 3
	EC NO	215-647-6		Aquatic Acute 1	H400 Very toxic to aquatic life.	
	INDEX NO					
	REACH NO					
	KKDIK NO					
Silver nitrate	CAS NO	7761-88-8	1,7	Ox. Sol. 2	H272 May intensify fire; oxidiser.	[1] Substance classified with a health or environmental hazard. Not = M (Acute) =
	EC NO	231-853-9		Skin Corr. 1B	H314 Causes severe skin burns and eye damage.	
	INDEX NO			Aquatic Acute 1	H400 Very toxic to aquatic life.	
	REACH NO			Aquatic Chronic 1	H410 Very toxic to aquatic life with long	

Inhalation :	Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respirati-on or oxygen by trained personnel and seek medical help .
Skin contact :	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
Eye contact :	Check for and remove any contact lenses. Immediately flush eyes with room temperature water for at least 15 minutes, keeping eyelids open. In case of accidental eye contact, avoid concurrent exposure to the sun or other sources of UV light which may increase the sensitivity of the eyes.
Swallowing :	If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.
Protection of first-aiders :	No action shall be taken involving any personal risk or without suitable training. In situations where you suspect smoke is present, the rescuer must use a suitable mask or complete breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed :

There are not available on the mixture/substance itself. Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]. See Sections 2 and 3 for details. Exposure to component vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue muscular weakness, drowsiness and, in extreme cases, loss of consciousness. May cause some of the above effects by absorption through the skin. Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, may cause irritation and damage. Ingestion may cause nausea, diarrhea and vomiting. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact. May produce allergic reactions.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to medical doctor :	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments :	No data available. See toxicology information (Section 11).

SECTION 5: Firefighting measures

5.1 Extinguishing media

if available, relevant information was taken from raw material safety data sheets, if not, from the ICSC database on the ILO-International Labor Organization website.

Suitable extinguishing media :	No data available.
Unsuitable extinguishing media :	Do not use pressurized water.

5.2 Special hazards arising from the substance or mixture

Hazards arising from the substance or mixture :	No data available.
Hazardous combustion products :	No data available.

5.3 Advice for firefighters

Protective measures to be taken during fire extinguishing : No data available.

Special protective equipment for fire fighters : A suitable respiratory apparatus may be required.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Exclude sources of ignition and ventilate the area. Avoid breathing vapor or mist. Refer to protective measures listed in sections 7 and 8.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in For non-emergency personnel.

6.2 Environmental precautions : Do not allow to enter drains or watercourses. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations

6.3 Methods and materials for containment and cleaning up : Contain and collect the spilled material with non-combustible absorbent material such as sand, earth, vermiculite or diatomaceous earth and place in a container for disposal in accordance with local regulations (see section 13). Use detergents preferably for cleaning up, avoid solvents.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling : The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. Keep container tightly closed. Keep away from heat, sparks and flame. No sparking tools should be used. Avoid contact with skin and eyes. Avoid the inhalation of dust, particulates, spray or mist arising from the application of this mixture. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Put on appropriate personal protective equipment (see Section 8). Never use pressure to empty. Container is not a pressure vessel. Always keep in containers made from the same material as the original one. Comply with the health and safety at work laws.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where materials are transported, stored and processed. Workers should wash their hands before eating, drinking or smoking. Remove contaminated clothing and protective equipment before entering areas where food is consumed. Also see Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities- : No data available.

Notes on shared storage : Store in accordance with local regulations. Keep away from: Metal, powder, organic substances, oxidizing agents, strong alkalis, strong acids.. Additional

information on storage conditions observe label precautions. Store in a dry, cool and well-ventilated area. Keep away from heat and direct sunlight. Keep away from sources of ignition. No smoking. Prevent unauthorized access. Keep container tightly closed. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Use suitable container to avoid environmental contamination. Do not reuse container. See Section 10 before handling or using incompatible materials.

Seveso Directive - Notification of Thresholds

Hazard Criteria

Category	Information and BEKP Threshold	Security Report Threshold
No data available	No data available	No data available

7.3 Specific end use(s)

Recommendations :

The recommendations for the listed user(s) mentioned in Section 1 can be found in Section 7.

Industrial sector specific solutions :

No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ammonia, aqueous solution
Silver nitrate
Sodium hydroxide

Product/ingredient name	Exposure limit values
No data available	No data available

Biological exposure indices

No data available

Recommended monitoring procedures :

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNEL s/DMEL s

Ammonia, aqueous solution
No data available
Silver nitrate
No data available
Sodium hydroxide

No data available

PNEC s

Ammonia, aqueous solution

No data available

Silver nitrate

No data available

Sodium hydroxide

No data available

8.2 Exposure controls

Appropriate engineering controls :

Provide adequate ventilation. Avoid inhaling. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and solvent vapors below the OEL, suitable respiratory protection must be worn.

Individual protection measures :

Hygiene measures :

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection :

Use safety eyewear designed to protect against splash of liquids according to EN166.

Skin protection :

Hand protection :

Gloves :

Wear suitable gloves tested to EN374. There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals. Chemical-resistant, water or air proof gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Check that the gloves maintain their protective properties during use, taking into account the parameters defined by the glove manufacturer. It should be noted that the time of breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred. The user must check that the type of glove they have chosen is the most suitable type for working with this product and ensure that the specific conditions for this product, as defined in the user s risk assessment document, are met.

Body protection :

Personnel should wear antistatic clothing made of natural fibers or of hightemperature-resistant synthetic fibers.

Other skin protectors

No data available

Respiratory protection :

If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators.

Environmental exposure controls :

Do not allow to enter drains or watercourses.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state, appearance :	Liquid
Colour :	No data available
Odour :	No data available
Odour threshold :	No data available
Melting point/freezing point :	No data available
Flash point :	No data available
Flammability :	No data available
pH :	No data available
Up and down flame. or explosion limits :	No data available
Density :	No data available
First boiling point and range :	No data available
Evaporation rate :	No data available
Vapour pressure :	No data available
Vapor density :	No data available
Relative density :	No data available
Solubility(ies) :	No data available
Partition coefficient: n-octanol/ water :	No data available
Auto-ignition temperature :	No data available
Decomposition temperature :	No data available
Viscosity :	No data available
Explosive properties :	No data available
Oxidizing properties :	No data available
Critical Temperature :	No data available
Note :	No data available

9.2 Other information

VOC % : No data available

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : Stable under recommended storage and handling conditions (see Section 7).

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : When exposed to high temperatures may produce hazardous decomposition products.

10.5 Incompatible materials : Keep away from the following materials to prevent strong exothermic reactions: Metal, powder, organic substances, oxidizing agents, strong alkalis, strong acids.

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

There are not available on the mixture/substance itself. Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]. See Sections 2 and 3 for details. Exposure to component vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. May cause some of the above effects by absorption through the skin. Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and damage. Ingestion may cause nausea, diarrhea and vomiting. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact. May produce an allergic reactions.

Acute toxicity

No data available

Irritation/Corrosion

No data available

Sensitization

No data available

Mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Teratogenicity

No data available

Specific target organ toxicity (single exposure)

No data available

Specific target organ toxicity (repeated exposure)

No data available

Aspiration hazard

No data available

11.2 Information regarding other hazards

11.2.1 Endocrine disrupting properties

No data available

11.2.2 Other information

No data available

SECTION 12: Ecological information

There are not available on the mixture /substance itself.
Do not allow to enter drains or watercourses.

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]. See Chapters 2 and 3 for details.

12.1 Ecological Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
No data available	No data available	No data available	No data available

12.4 Mobility in soil

Soil/water partition coefficient (KOC): : No data available

Mobility : No data available

12.5 Results of PBT and vPvB assessment

PBT : No data available

vPvB : No data available

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

Do not allow to enter drains or watercourses. Dispose of according to all federal, state and local applicable regulations. If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned. For further information, contact your local waste authority.

13.1 Waste treatment methods

Product

Disposal Methods No data available

Disposal Information No data available

European Waste Catalogue (EWC) Special precautions





This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Packaging

Disposal Methods No data available

Disposal Information No data available

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN1760	UN1760	UN1760	UN1760
14.2 UN proper shipping name	CORROSIVE LIQUID, N.O.S.	CORROSIVE LIQUID, N.O.S.	CORROSIVE LIQUID, N.O.S.	CORROSIVE LIQUID, N.O.S.
14.3 Transport hazard class(es) & class. Code	8 (C9)	8 (C9)	8 (C9)	8 (C9)
Label Info				
8				
14.4 Packing group	I	I	I	I
14.5 Environmental hazards	yes	yes	yes	yes
Additional information (Tunnel restriction code)	1(E)	1(E)	1(E)	1(E)

14.6 Special Precautions for user : Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Bulk maritime transport according to IMO instruments. No data available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
EU Regulation (EC) No. 1907/2006 (REACH) Annex XIV - List of substances subject to authorization Annex XIV None of the components are listed.

Substances of very high concern None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : No data available

Other EU regulations

No data available

Substances that deplete the ozone layer (2024/590/EU)

No data available

Prior Informed Consent (PIC) (649/2012/EU)

No data available

Persistent organic pollutants

No data available

Seveso Directive

No data available

National Legislation

Industrial use : The information contained in this safety data sheet does not

constitute the user's own assessment of workplace risks, as required by other health and safety legislation. The provisions of the national health and safety at work regulations have to be apply to the use of this product at work.

15.2 Chemical Safety Assessment :

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

Abbreviations and acronyms :

ATE = Predicted acute toxicity
 CLP = Classification, Labelling and Packaging Regulation (Regulation (EC) No.1272/2008)
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]	
Classification	Justification
Skin corrosion 1B	Calculation method
Serious eye damage 1	
Corrosive to metals 1	
Oxidizing liquids 2	
Hazardous to the aquatic environment aquatic chronic 3	

Full text of abbreviated H statements	Exposure way
H272 May intensify fire; oxidiser.	
H290 May be corrosive to metals.	
H314 Causes severe skin burns and eye damage.	
H318 Causes serious eye damage.	
H412 Harmful to aquatic life with long lasting effects.	

Full text of classifications [CLP/GHS] :
Skin corrosion 1B
Serious eye damage 1
Corrosive to metals 1
Oxidizing liquids 2
Hazardous to the aquatic environment aquatic chronic 3

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Date previous of issue : Mevcut değil / Not available
Version : 1.0

No data available

Classification procedure: Classification was performed in accordance with Regulation (EC) No 1272/2008 (CLP). In the absence of a harmonised classification under Annex VI, the classification was derived based on available physicochemical and toxicological data, supplier safety data sheets and internationally recognised GHS information sources. The final hazard classification was determined by applying the classification criteria set out in the CLP Regulation. Legal Information: This safety data sheet has been prepared in accordance with Annex II of the Regulation on the Registration, Evaluation, Authorisation and Restriction of Chemicals (KKDİK), published in the Official Gazette dated 23 June 2017 and numbered 30105. The classification has been carried out in compliance with the Regulation on Classification, Labelling and Packaging of Substances and Mixtures (SEA) and Regulation (EC) No 1272/2008 (CLP). This document has been prepared and approved by a certified safety data sheet preparer in accordance with the applicable legislation.

Material Safety Data Sheet Prepared by : **ÖNDER ISLEK**
Specialist email Address : **info@guvenlikbilgiformu.net**
Specialist Accreditation No : **TÜV / 11.284.04**
Specialist Accreditation Valid Until : **10.07.2030**

Notice to reader

The information in this SDS is based on the present state of our knowledge and on current laws.

The product is not to be used for purposes other than those specified under section 1 without first obtaining written handling instructions.

It is always the responsibility of the user to take all necessary steps to fulfill the demands set out in the local rules and legislation. This classification is based on the Globally Harmonized System (GHS). Regulatory adaptation may be required depending on the destination country.

The information in this SDS is meant to be a description of the safety requirements for our product. It is not to be considered a guarantee of the product's properties.