



## Safety Data Sheet acc. to OSHA HCS

Printing date 01/11/2023

Revision date 01/11/2023

### 1 Identification

- **Product identifier**
- **Trade name: Hydroxyproline Assay Reagent 2**
- **Article number:** 400555
- **Application of the substance / the mixture**  
This product is for research use - Not for human or veterinary diagnostic or therapeutic use.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Cayman Chemical Co.  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108  
USA
- **Information department:** Product safety department
- **Emergency telephone number:**  
During normal opening times: +1 (734) 971-3335  
US/CANADA: 800-424-9300  
Outside US/CANADA: 703-741-5970

### 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids 2

H225

Highly flammable liquid and vapor.



GHS05 Corrosion

Eye Damage 1

H318

Causes serious eye damage.



GHS07

Acute Toxicity - Oral 4

H302

Harmful if swallowed.

Skin Irritation 2

H315

Causes skin irritation.

Specific Target Organ Toxicity - Single Exposure 3

H335-H336

May cause respiratory irritation. May cause drowsiness or dizziness.

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- **Label elements**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02   GHS05   GHS07

- **Signal word** Danger

- **Hazard-determining components of labeling:**

4-dimethylaminobenzaldehyde

Hydrochloric acid

Isopropyl alcohol

- **Hazard statements**

H225      Highly flammable liquid and vapor.

H302      Harmful if swallowed.

H315      Causes skin irritation.

H318      Causes serious eye damage.

H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

- **Precautionary statements**

P210      Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P240      Ground/bond container and receiving equipment.

P241      Use explosion-proof electrical/ventilating/lighting/equipment.

P242      Use only non-sparking tools.

P243      Take precautionary measures against static discharge.

P261      Avoid breathing dust/fume/gas/mist/vapors/spray

P264      Wash thoroughly after handling.

P270      Do not eat, drink or smoke when using this product.

P271      Use only outdoors or in a well-ventilated area.

P280      Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312      If swallowed: Call a poison center/doctor if you feel unwell.

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.

P310      Immediately call a poison center/doctor.

P321      Specific treatment (see on this label).

P330      Rinse mouth.

P362+P364      Take off contaminated clothing and wash it before reuse.

P332+P313      If skin irritation occurs: Get medical advice/attention.

P370+P378      In case of fire: Use CO<sub>2</sub>, powder or water spray to extinguish.

P403+P233      Store in a well-ventilated place. Keep container tightly closed.

P403+P235      Store in a well-ventilated place. Keep cool.

P405      Store locked up.

P501      Dispose of contents/container in accordance with local/regional/national/international regulations.

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- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 3  
Fire = 3  
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = \*3  
Fire = 3  
Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

## 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

CAS: 67-63-0 RTECS: NT8050000	Isopropyl alcohol	70.0%
CAS: 100-10-7 RTECS: CU 5775000	4-dimethylaminobenzaldehyde	14.9143%
CAS: 7647-01-0 RTECS: MW4025000	Hydrochloric acid	11.4%

- **Other ingredients**

CAS: 7732-18-5 RTECS: ZC0110000	Water	3.6857%
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## 4 First-aid measures

- **Description of first aid measures**
- **General information:**  
Immediately remove any clothing soiled by the product.  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Immediately call a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**  
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

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## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Use neutralizing agent.  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **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.
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

67-63-0	Isopropyl alcohol	400 ppm
100-10-7	4-dimethylaminobenzaldehyde	8.2 mg/m <sup>3</sup>
7647-01-0	Hydrochloric acid	1.8 ppm

- **PAC-2:**

67-63-0	Isopropyl alcohol	2000* ppm
100-10-7	4-dimethylaminobenzaldehyde	90 mg/m <sup>3</sup>
7647-01-0	Hydrochloric acid	22 ppm

- **PAC-3:**

67-63-0	Isopropyl alcohol	12000** ppm
100-10-7	4-dimethylaminobenzaldehyde	250 mg/m <sup>3</sup>
7647-01-0	Hydrochloric acid	100 ppm

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.

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- **Conditions for safe storage, including any incompatibilities**
- **Storage:** Store in accordance with information listed on the product insert.
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.  
At this time, the remaining constituent has no known exposure limits.

### 67-63-0 Isopropyl alcohol

PEL	Long-term value: 980 mg/m <sup>3</sup> , 400 ppm
REL	Short-term value: 1225 mg/m <sup>3</sup> , 500 ppm Long-term value: 980 mg/m <sup>3</sup> , 400 ppm
TLV	Short-term value: 400 ppm Long-term value: 200 ppm BEI, A4

### 7647-01-0 Hydrochloric acid

PEL	Ceiling limit value: 7 mg/m <sup>3</sup> , 5 ppm
REL	Ceiling limit value: 7 mg/m <sup>3</sup> , 5 ppm
TLV	Ceiling limit value: 2 ppm A4

- **Ingredients with biological limit values:**

### 67-63-0 Isopropyl alcohol

BEI	40 mg/L Medium: urine Time: end of shift at end of workweek Parameter: Acetone (background, nonspecific)
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- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Avoid contact with the skin.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **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.

- **Eye protection:**



Tightly sealed goggles

## 9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

- **Form:**

Liquid

- **Color:**

According to product specification

- **Odor:**

Characteristic

- **Odor threshold:**

Not determined.

- **pH-value:**

Not determined.

- **Change in condition**

- **Melting point/Melting range:**

Undetermined.

- **Boiling point/Boiling range:**

82 °C (179.6 °F)

- **Flash point:**

12 °C (53.6 °F)

- **Flammability (solid, gaseous):**

Highly flammable.

- **Ignition temperature:**

425 °C (797 °F)

- **Decomposition temperature:**

Not determined.

- **Auto igniting:**

Product is not selfigniting.

- **Danger of explosion:**

Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

- **Explosion limits:**

- **Lower:**

2 Vol %

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<b>Upper:</b>	12 Vol %
· <b>Vapor pressure at 20 °C (68 °F):</b>	43 hPa (32.3 mm Hg)
· <b>Density at 20 °C (68 °F):</b>	0.83379 g/cm <sup>3</sup> (6.95798 lbs/gal)
· <b>Bulk density:</b>	774 kg/m <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with Water:</b>	Fully miscible.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Solvent content:</b>	
<b>Organic solvents:</b>	70.0 %
<b>Water:</b>	3.7 %
<b>VOC content:</b>	70.00 %
	583.7 g/l / 4.87 lb/gal
<b>Solids content:</b>	14.9 %
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

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

### ATE (Acute Toxicity Estimate)

Oral	LD50	618 mg/kg
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### 67-63-0 Isopropyl alcohol

Oral	LD50	5,045 mg/kg (rat)
Dermal	LD50	12,800 mg/kg (rabbit)
Inhalative	LC50	16,000 mg/m <sup>3</sup> /8h (rat)
	LC50/4 h	30 mg/l (rat)

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Irritation of skin	Irritation	500 mg (rabbit)
Irritation of eyes	Irritation	100 mg/24h (rabbit)
	Data	100 mg/24h (rabbit)
<b>7647-01-0 Hydrochloric acid</b>		
Oral	LD50	900 mg/kg (rabbit)
	LDLO	2,857 µg/kg (man)
	LDLO	420 µL/kg (wmn)
Inhalative	LC50	3,124 mg/m <sup>3</sup> /1h (rat)
	LCLO	1,300 mg/m <sup>3</sup> /30m (hmn)
Irritation of skin	Irritation	4 24h (hmn)
Irritation of eyes	Irritation	5 mg/30s (rabbit)
	Intraperitoneal LD50	40,142 µg/kg (mouse)

- **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful  
Irritant

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

67-63-0	Isopropyl alcohol	3
7647-01-0	Hydrochloric acid	3

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**

- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.

- **Behavior in environmental systems:**

- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 2 (Self-assessment): hazardous for water  
Do not allow product to reach ground water, water course or sewage system.  
Must not reach bodies of water or drainage ditch undiluted or unneutralized.  
Danger to drinking water if even small quantities leak into the ground.

- **Results of PBT and vPvB assessment**

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

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- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

<ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>DOT, IMDG, IATA</b></li> </ul>	UN2924
<ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT</b></li> <li>· <b>IMDG</b></li> <li>· <b>IATA</b></li> </ul>	Flammable liquids, corrosive, n.o.s. (Isopropanol, Hydrochloric acid) FLAMMABLE LIQUID, CORROSIVE, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL), HYDROCHLORIC ACID) Flammable liquid, corrosive, n.o.s. (ISOPROPANOL (ISOPROPYL ALCOHOL), HYDROCHLORIC ACID)
<ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT</b></li> </ul>	
<ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	3 Flammable liquids 3, 8
<ul style="list-style-type: none"> <li>· <b>IMDG</b></li> </ul>	
<ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	3 Flammable liquids 3/8
<ul style="list-style-type: none"> <li>· <b>IATA</b></li> </ul>	
<ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	3 Flammable liquids 3 (8)

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· Packing group · DOT, IMDG, IATA	II
· Environmental hazards:	Not applicable.
· Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Segregation groups · Stowage Category · Stowage Code	Warning: Flammable liquids 338 F-E,S-C (SGG1a) Strong acids B SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information: · DOT · Quantity limitations	On passenger aircraft/rail: 1 L On cargo aircraft only: 5 L
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· IATA · Remarks:	When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.
· UN "Model Regulation":	UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL), HYDROCHLORIC ACID), 3 (8), II

## 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture  
No further relevant information available.

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- Section 355 (extremely hazardous substances):

7647-01-0	Hydrochloric acid
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- Section 313 (Specific toxic chemical listings):

67-63-0	Isopropyl alcohol
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7647-01-0	Hydrochloric acid
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- TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.
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- Hazardous Air Pollutants

7647-01-0	Hydrochloric acid
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- **Proposition 65**

- **Chemicals known to cause cancer:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

- **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

- **TLV (Threshold Limit Value)**

67-63-0	Isopropyl alcohol	A4
7647-01-0	Hydrochloric acid	A4

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

- **Department issuing SDS:** Environment protection department.

- **Contact:** -

- **Date of preparation / last revision** 01/11/2023

- **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

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)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety &amp; Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flammable Liquids 2: Flammable liquids – Category 2

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Acute Toxicity - Oral 4: Acute toxicity – Category 4

Skin Irritation 2: Skin corrosion/irritation – Category 2

Eye Damage 1: Serious eye damage/eye irritation – Category 1

Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

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