

Safety Data Sheet
according to WHS Regulations

Printing date 03.12.2023

Version number 7

Revision: 03.12.2023

Hazardous according to criteria of Australian Safety and Compensation Council.

1 Identification

- **Product identifier**
- **Trade name:** EN³HANCE Liquid Autoradiography Enhancer
- **Article number:** 6NE9701
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Revvity Health Sciences B.V.
Rigaweg 22
9723 TH Groningen
The Netherlands
Phone: 0031 50 5445900
www.revvity.com
Australian contact address:
Revvity
Level 2 ,Building C, Tenancy A,
211 Wellington Road,
Mulgrave,
VIC 3170
Australia
Phone: +613 9212 8500
- **Further information obtainable from:**
Quality Assurance, Environment, Safety & Health (QA/ESH)
SDS.Groningen@revvity.com
- **Emergency telephone number:**
+31 50 5445971
CHEMTREC (within Australia) +(61)-290372994
CHEMTREC (from outside Australia) +1 703-527-3887

2 Hazard(s) Identification

- **Classification of the substance or mixture**



GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.



GHS05 corrosion

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

Eye Dam. 1 H318 Causes serious eye damage.

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

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- **Label elements**
- **GHS label elements**
The product is classified and labelled according to the Globally Harmonised System (GHS).
- **Hazard pictograms**



GHS02 GHS05

- **Signal word** Danger
- **Hazard-determining components of labelling:**
Acetic acid (60-80 %)
2,5-dimethylhexane-2,5-diol (2.5-10 %)
tert-Butyl alcohol (2.5-10 %)
- **Hazard statements**
H226 Flammable liquid and vapour.
H314 Causes severe skin burns and eye damage.
H412 Harmful to aquatic life with long lasting effects.
- **Precautionary statements**
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition and Information on Ingredients

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

Dangerous components:

64-19-7	Acetic acid Flam. Liq. 3, H226 Skin Corr. 1A, H314	60-80%
110-03-2	2,5-dimethylhexane-2,5-diol Eye Dam. 1, H318	2.5-10%
75-65-0	tert-Butyl alcohol Flam. Liq. 2, H225 Eye Dam. 1, H318 Acute Tox. 4, H332; STOT SE 3, H335	2.5-10%

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91-57-6	2-methylnaphthalene ⚠ Acute Tox. 4, H302	2.5-10%
6303-21-5	Hypophosphorous acid ⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318	0-2.5%
· Non-dangerous components		
92-71-7	2,5-Diphenyloxazole (PPO)	0-2.5%

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

4 First Aid Measures

- **General information:** Immediately remove any clothing soiled by the product.
- **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:** Drink plenty of water and provide fresh air. Call for a doctor immediately.
- **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.

5 Fire Fighting Measures

- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **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:** 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 neutralising agent.
Dispose contaminated material as waste according to section 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.

7 Handling and Storage

- **Handling:**
- **Precautions for safe handling**
Work only in fume cupboard.
Use only in well ventilated areas.

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- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Store receptacle in a well ventilated area.
Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls and personal protection

- **Additional information about design of technical facilities:** No further data; see section 7.

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

64-19-7 Acetic acid

NES	Short-term value: 37 mg/m ³ , 15 ppm
	Long-term value: 25 mg/m ³ , 10 ppm

75-65-0 tert-Butyl alcohol

NES	Short-term value: 455 mg/m ³ , 150 ppm
	Long-term value: 303 mg/m ³ , 100 ppm

- **Additional information:** The lists valid during the making were used as basis.
- **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 eyes and skin.
- **Respiratory protection:** Not required.
- **Protection of hands:**



Protective gloves

EN ISO 374-1/Type B

- **Material of gloves**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.2 mm
Breakthrough time: > 120 minutes
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.

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· Eye protection:



Tightly sealed goggles

9 Physical and Chemical Properties

· General Information

· Appearance:

· Form: Fluid
· Colour: Colourless
· Odour: Characteristic

· Change in condition

· Melting point/freezing point: Undetermined.
· Initial boiling point and boiling range: Undetermined.

· Flash point: 39 °C

· Ignition temperature: Product is not selfigniting.

· Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

· Explosion limits:

· Lower: 4.0 Vol %

· Upper: 17.0 Vol %

· Density at 20 °C: 1.016 g/cm³

· Solubility in / Miscibility with

· water: Not miscible or difficult to mix.

· Other information No further relevant information available.

10 Stability and Reactivity

· Reactivity No further relevant information available.

· 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 Based on available data, the classification criteria are not met.

· LD/LC50 values relevant for classification:

ATE (Acute Toxicity Estimates)

Oral	LD50	3,431 mg/kg
Dermal	LD50	1,268 mg/kg (Rabbit)
Inhalative	LC50/4 h	443 mg/l (Rat)

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64-19-7 Acetic acid

Oral	LD50	3,310 mg/kg (Rat)
Dermal	LD50	1,060 mg/kg (Rabbit)

91-57-6 2-methylnaphthalene

Oral	LD50	1,630 mg/kg (Rat)
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- **Skin corrosion/irritation**
Causes severe skin burns and eye damage.
- **Serious eye damage/irritation**
Causes serious eye damage.
- **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** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

12 Ecological Information

· **Toxicity**

· **Aquatic toxicity:**

64-19-7 Acetic acid

Inhalative	EC50/48h	300.82 mg/l (Daphnia magna)
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91-57-6 2-methylnaphthalene

Inhalative	LC50/48	1.5 mg/l (Daphnia magna)
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- **Persistence and degradability** No further relevant information available.
- **Behaviour 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 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralised.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

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- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number	2920
· ADG, IMDG, IATA	
· UN proper shipping name	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (ACETIC ACID, GLACIAL, BUTANOLS)
· IMDG, IATA	
· Transport hazard class(es)	
· ADG	
	
· Class	8 (CF1) Corrosive substances.
· Label	8+3
· IMDG, IATA	
	
· Class	8 Corrosive substances.
· Label	8+3
· Packing group	II
· ADG, IMDG, IATA	
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Corrosive substances.
· Hazard identification number (Kemler code):	83
· EMS Number:	F-E,S-C
· Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· UN "Model Regulation":	UN2920, CORROSIVE LIQUID, FLAMMABLE, N.O.S. (ACETIC ACID, GLACIAL, BUTANOLS), 8 (3), II

15 Regulatory information

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

· Australian Inventory of Industrial Chemicals

All ingredients are listed.

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· **Standard for the Uniform Scheduling of Medicines and Poisons**

64-19-7 Acetic acid

S2, S5, S6

· **Australia: Priority Existing Chemicals**

None of the ingredients is listed.

· **GHS label elements**

The product is classified and labelled according to the Globally Harmonised System (GHS).

· **Hazard pictograms**



GHS02 GHS05

· **Signal word** *Danger*

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

Acetic acid (60-80 %)

2,5-dimethylhexane-2,5-diol (2.5-10 %)

tert-Butyl alcohol (2.5-10 %)

· **Hazard statements**

H226 Flammable liquid and vapour.

H314 Causes severe skin burns and eye damage.

H412 Harmful to aquatic life with long lasting effects.

· **Precautionary statements**

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

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

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

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

· **Directive 2012/18/EU**

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t

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

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**

H225 Highly flammable liquid and vapour.

H226 Flammable liquid and vapour.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

· **Department issuing SDS:** Quality Assurance, Environment, Safety & Health (QA/ESH)

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· **Contact:** SDS.Groningen@revvity.com

· **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)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

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

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

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

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

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

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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

· *** Data compared to the previous version altered.**