

**1 Identification**

- **Product identifier**
- **Trade name:** EN<sup>3</sup>HANCE Liquid Autoradiography Enhancer
- **Article number:** 6NE9701
- **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
- **Information department:**  
Quality Assurance, Environment, Safety & Health (QA/ESH)  
SDS.Groningen@revvity.com
- **Emergency telephone number:**  
+31 50 5445971  
CHEMTREC (within U.S.A. and Canada) 1-800-424-9300  
CHEMTREC (from outside U.S.A. and Canada) +1703-527-3887

**2 Hazard(s) identification**

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids 3 H226 Flammable liquid and vapor.



GHS05 Corrosion

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

Eye Damage 1 H318 Causes serious eye damage.

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

- **Label elements**

- **GHS label elements**

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

- **Hazard pictograms**



GHS02



GHS05

- **Signal word** Danger

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

Acetic acid

2,5-dimethylhexane-2,5-diol

Trade name: EN<sup>3</sup>HANCE Liquid Autoradiography Enhancer

(Contd. of page 1)

**Hazard statements**

- H226 Flammable liquid and vapor.
- 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/vapors/spray.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- 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.

**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:**

64-19-7	Acetic acid Flammable Liquids 3, H226 Skin Corrosion 1A, H314	60-80%
110-03-2	2,5-dimethylhexane-2,5-diol Eye Damage 1, H318	2.5-10%
75-65-0	tert-Butyl alcohol Flammable Liquids 2, H225 Acute Toxicity - Inhalation 4, H332; Eye Irritation 2A, H319; Specific Target Organ Toxicity - Single Exposure 3, H335-H336	2.5-10%
91-57-6	2-methylnaphthalene Acute Toxicity - Oral 4, H302	2.5-10%
6303-21-5	Hypophosphorous acid Skin Corrosion 1B, H314; Eye Damage 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**

**Description of 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 copious amounts of water and provide fresh air. Immediately call a doctor.

(Contd. on page 3)

Trade name: EN<sup>3</sup>HANCE Liquid Autoradiography Enhancer

(Contd. of page 2)

- **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

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing 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.
- **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:** 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 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.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

64-19-7	Acetic acid	5 ppm
75-65-0	tert-Butyl alcohol	150 ppm
91-57-6	2-methylnaphthalene	9 mg/m <sup>3</sup>
6303-21-5	Hypophosphorous acid	30 mg/m <sup>3</sup>
92-71-7	2,5-Diphenyloxazole (PPO)	2.5 mg/m <sup>3</sup>

· **PAC-2:**

64-19-7	Acetic acid	35 ppm
75-65-0	tert-Butyl alcohol	1,300 ppm
91-57-6	2-methylnaphthalene	54 mg/m <sup>3</sup>
6303-21-5	Hypophosphorous acid	330 mg/m <sup>3</sup>
92-71-7	2,5-Diphenyloxazole (PPO)	27 mg/m <sup>3</sup>

· **PAC-3:**

64-19-7	Acetic acid	250 ppm
75-65-0	tert-Butyl alcohol	8000* ppm
91-57-6	2-methylnaphthalene	320 mg/m <sup>3</sup>
6303-21-5	Hypophosphorous acid	2,000 mg/m <sup>3</sup>

(Contd. on page 4)

Trade name: EN<sup>3</sup>HANCE Liquid Autoradiography Enhancer

92-71-7 | 2,5-Diphenyloxazole (PPO)

(Contd. of page 3)

160 mg/m<sup>3</sup>

**7 Handling and storage**

- **Handling:**
- **Precautions for safe handling**  
Work only in fume cabinet.  
Use only in well ventilated areas.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **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/personal protection**

- **Additional information about design of technical systems:** No further data; see section 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 other constituents have no known exposure limits.

**64-19-7 Acetic acid**

PEL	25 mg/m <sup>3</sup> , 10 ppm
REL	Short-term value: 37 mg/m <sup>3</sup> , 15 ppm Long-term value: 25 mg/m <sup>3</sup> , 10 ppm
TLV	Short-term value: 37 mg/m <sup>3</sup> , 15 ppm Long-term value: 25 mg/m <sup>3</sup> , 10 ppm

**75-65-0 tert-Butyl alcohol**

PEL	300 mg/m <sup>3</sup> , 100 ppm
REL	Short-term value: 450 mg/m <sup>3</sup> , 150 ppm Long-term value: 300 mg/m <sup>3</sup> , 100 ppm
TLV	303 mg/m <sup>3</sup> , 100 ppm

- **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 eyes and skin.
- **Breathing equipment:** Not required.

(Contd. on page 5)

Trade name: EN<sup>3</sup>HANCE Liquid Autoradiography Enhancer

(Contd. of page 4)

· **Protection of hands:**



Protective gloves

EN ISO 374-1/Type B

· **Material of gloves**

Nitrile rubber, NBR

Recommended thickness of the material:  $\geq 0.2$  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.

· **Eye protection:**



Tightly sealed goggles

**9 Physical and chemical properties**

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

· **General Information**

· **Appearance:**

Form: Fluid  
Color: Colorless  
Odor: Characteristic

· **Change in condition**

Melting point/Melting range: Undetermined.  
Boiling point/Boiling range: Undetermined.

· **Flash point:** 39 °C (102.2 °F)

· **Ignition temperature:** Product is not selfigniting.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

Lower: 4.0 Vol %  
Upper: 17.0 Vol %

· **Density at 20 °C (68 °F):** 1.016 g/cm<sup>3</sup> (8.47852 lbs/gal)

· **Solubility in / Miscibility with**

Water: Not miscible or difficult to mix.

· **Solvent content:**

VOC content: 70-90 %

(Contd. on page 6)

Trade name: EN<sup>3</sup>HANCE Liquid Autoradiography Enhancer

(Contd. of page 5)

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

**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)
------	------	-------------------

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Corrosive  
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Carcinogenic categories**

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

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

(Contd. on page 7)

Trade name: EN<sup>3</sup>HANCE Liquid Autoradiography Enhancer

(Contd. of page 6)

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

### 12 Ecological information

· Toxicity

· Aquatic toxicity:

64-19-7 Acetic acid

Inhalative	EC50/48h	300.82 mg/l (Daphnia magna)
------------	----------	-----------------------------

91-57-6 2-methylnaphthalene

Inhalative	LC50/48	1.5 mg/l (Daphnia magna)
------------	---------	--------------------------

· 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 1 (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 bodies of water or drainage ditch undiluted or unneutralized.

· 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 of together with household garbage. Do not allow product to reach sewage system.

· Uncleaned packagings:

· Recommendation: Disposal must be made according to official regulations.

### 14 Transport information

· UN-Number

· ADR, IMDG, IATA

2920

· UN proper shipping name

· IMDG, IATA

CORROSIVE LIQUID, FLAMMABLE, N.O.S. (ACETIC ACID, GLACIAL, BUTANOLS)

(Contd. on page 8)

Trade name: EN<sup>3</sup>HANCE Liquid Autoradiography Enhancer

(Contd. of page 7)

· **Transport hazard class(es)**

· **ADR**



· **Class**

8 (CF1) Corrosive substances

· **Label**

8+3

· **IMDG, IATA**



· **Class**

8 Corrosive substances

· **Label**

8+3

· **Packing group**

II

· **ADR, 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 MARPOL73/78 and the IBC Code**

Not applicable.

· **UN "Model Regulation":**

UN2920, CORROSIVE LIQUID, FLAMMABLE, N.O.S., 8 (3), II

**15 Regulatory information**

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

No further relevant information available.

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredient is listed.

· **Section 313 (Specific toxic chemical listings):**

75-65-0 | tert-Butyl alcohol

· **TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

(Contd. on page 9)



Trade name: EN<sup>3</sup>HANCE Liquid Autoradiography Enhancer

(Contd. of page 8)

· **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)**

75-65-0	tert-Butyl alcohol	SC
91-57-6	2-methylnaphthalene	I

· **TLV (Threshold Limit Value)**

75-65-0	tert-Butyl alcohol	A4
91-57-6	2-methylnaphthalene	A4

· **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

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

None of the ingredients is listed.

· **GHS label elements**

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

· **Hazard pictograms**



GHS02 GHS05

· **Signal word** Danger

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

Acetic acid

2,5-dimethylhexane-2,5-diol

· **Hazard statements**

H226 Flammable liquid and vapor.

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/vapors/spray.

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

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.

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

US

(Contd. on page 10)

Trade name: EN<sup>3</sup>HANCE Liquid Autoradiography Enhancer

(Contd. of page 9)

**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 vapor.  
H226 Flammable liquid and vapor.  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H335 May cause respiratory irritation.  
H336 May cause drowsiness or dizziness.

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

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

- **Date of preparation / last revision** 12/03/2023

- **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)  
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 & Health  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
Flammable Liquids 2: Flammable liquids – Category 2  
Flammable Liquids 3: Flammable liquids – Category 3  
Acute Toxicity - Inhalation 4: Acute toxicity – Category 4  
Skin Corrosion 1A: Skin corrosion/irritation – Category 1A  
Skin Corrosion 1B: Skin corrosion/irritation – Category 1B  
Eye Damage 1: Serious eye damage/eye irritation – Category 1  
Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A  
Specific Target Organ Toxicity - Single Exposure 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.**