

617H500 - Orthovinyl Lamination Resin

Material number 617H500

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1. Product and company identification

Product identifier

Trade name: 617H500 - Orthovinyl Lamination Resin

This safety data sheet pertains to the following products:

617H500=0.900 = Orthovinyl Laminierharz

617H500=4.600 = Orthovinyl Laminierharz

Recommended use and restrictions on use

General use: Production of plastics
For orthopedic procedures.
Reserved for industrial and professional use.

Initial supplier identifier

Company name: Otto Bock HealthCare Canada Ltd.

Street/POB-No.: 5470 Harvester Road

Postal Code, city: Burlington, ON L7L 5N5, CA
Canada

WWW: www.ottobock.ca

E-mail: info.canada@ottobock.com

Telephone: (800) 665-3327

Telefax: (800) 463-3659

Department responsible for information:

Mark Agro, Telephone: (800) 665-3327 (9 am - 5 pm)

Additional information:

Corporate headquarters:
Ottobock SE & Co. KGaA
Max-Näder-Straße 15
Duderstadt
Germany

Emergency phone number

COLLECT, Telephone: (613) 996-6666

Transport:

CONSULTANK Lutz Harder GmbH (Contract QUALI003)

Telephone: +49 (0)178-4337434 (from USA: 01149 178 4337434)

2. Hazards identification

Emergency overview

Appearance: Physical state at 20 °C and 101.3 kPa: liquid

Color: yellow

Odor: characteristic

Classification: Flammable Liquid 3. Acute Toxicity 4 (inhalative). Skin Irritation 2. Eye Irritation 2A.
Reproductive toxicity 2. Specific Target Organ Toxicity (Single Exposure) 3.
Specific Target Organ Toxicity (Repeated Exposure) 1. Aquatic toxicity - chronic 3.

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Revision date: 23/3/2025
Version: 5.3
Replaces version: 5.2
Language: en-CA
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Hazard symbols:



Signal word:

Danger

Hazard statements:

Flammable liquid and vapor.
Causes skin irritation.
Causes serious eye irritation.
Harmful if inhaled.
May cause respiratory irritation.
Suspected of damaging the unborn child.
Causes damage to organs through prolonged or repeated exposure.
Harmful to aquatic life with long lasting effects.

Precautionary statements:

Obtain special instructions before use.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not breathe fume/gas/mist/vapors/spray.
Wear protective gloves/protective clothing/eye protection/face protection.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.
Store in a well-ventilated place. Keep cool.

Regulatory status

This material is considered hazardous by the WHMIS in Canada.

Hazards not otherwise classified

Potentially explosive mixtures may form if adequate ventilation is not provided.
Inhaling can lead to irritations of the respiratory tract and mucous membrane.
Higher doses may lead to a narcotic effect.
Special danger of slipping by leaking/spilling product.
see section 11: Toxicological information

3. Composition / Information on ingredients

Relevant ingredients:

CAS No.	Designation	Concentration	Classification
CAS 100-42-5	Styrene	25 - 30 %	Flammable Liquid 3. Acute Toxicity 4 (inhalative). Skin Irritation 2. Eye Irritation 2A. Reproductive toxicity 2. Specific Target Organ Toxicity (Single Exposure) 3. Specific Target Organ Toxicity (Repeated Exposure) 1. Aspiration Toxicity 1. Aquatic toxicity - chronic 3.
CAS 64742-82-1	Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	2.5 - 10 %	Flammable Liquid 3. Specific Target Organ Toxicity (Single Exposure) 3. Specific Target Organ Toxicity (Repeated Exposure) 1. Aspiration Toxicity 1. Aquatic toxicity - chronic 2.
CAS 79-41-4	Methacrylic acid	< 3 %	Acute Toxicity 4 (oral). Acute Toxicity 4 (dermal). Skin Corrosion 1A.
CAS 91-66-7	N,N-Diethylaniline	< 1 %	Acute Toxicity 3 (oral). Acute Toxicity 3 (dermal). Acute Toxicity 3 (inhalative). Specific Target Organ Toxicity (Repeated Exposure) 2. Aquatic toxicity - chronic 2.
CAS 123-31-9	Hydroquinone	< 0.1 %	Acute Toxicity 4 (oral). Eye Damage 1. Sensitization - skin 1. Germ cell mutagenicity 2. Carcinogenicity 2. Aquatic toxicity - acute 1 (M-factor = 10).

4. First aid measures

General information:	If medical advice is needed, have product container or label at hand. Take off contaminated clothing and wash it before reuse.
In case of inhalation:	Move victim to fresh air. In case of breathing difficulties administer oxygen. In case of irregular breathing or respiratory arrest provide artificial respiration. Seek medical attention.
Following skin contact:	Wash affected skin with generous amount of water. Immediately get medical attention.
After eye contact:	Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Subsequently consult an ophthalmologist.
After swallowing:	Do not induce vomiting. Danger of aspiration! Immediately get medical attention. Aspiration of this product into the lungs during vomiting, may cause serious injury or death. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Harmful if inhaled.
Causes serious eye irritation. Causes skin irritation. May cause respiratory irritation.
Causes damage to organs through prolonged or repeated exposure.

Information to physician

When swallowed and vomited immediately, aspiration into the lungs may occur resulting in chemical pneumonia or suffocation.
Treat symptomatically.

5. Fire fighting measures

Flash point/flash point range:

33 °C (ISO 3679-B)

Auto-ignition temperature: 490 °C

Suitable extinguishing media:

Alcohol resistant foam, extinguishing powder, carbon dioxide.

Extinguishing media which must not be used for safety reasons:

Full water jet

Specific hazards arising from the chemical

Flammable liquid and vapor.

Air combined with vapors may form potentially explosive mixtures that are heavier than air. Vapors may proceed on the ground over great distances and cause fire and backflashes.

In case of fire may be liberated: nitrogen oxides (NO_x), Carbon monoxide and carbon dioxide.

Special protective equipment and precautions for fire-fighters:

Wear self-contained positive pressure breathing apparatus and full firefighting protective clothing.

Additional information:

Heating will lead to pressure increase: Danger of bursting and explosion. Keep containers cool with water spray.

In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Do not allow fire water to penetrate into surface or ground water.

Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

6. Accidental release measures

Personal precautions:

Do not breathe mist/vapors/spray. Eliminate all ignition sources if safe to do so. If possible, eliminate leakage. Provide adequate ventilation.

Wear appropriate protective equipment. Take off contaminated clothing and wash it before reuse. Keep unprotected people away.

Cordon off downwind area at risk and warn inhabitants.

Environmental precautions:

Do not allow to penetrate into soil, waterbodies or drains.

If necessary, notify appropriate authorities.

Methods for clean-up:

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13).

Beware of reignition. Thoroughly clean surrounding area.

In case of greater quantities: Collect mechanically (use only explosion-proof equipment when pumping out).

Additional information: Use explosion-proof equipment and non-sparking tools/utensils.
Special danger of slipping by leaking/spilling product.

7. Handling and storage

Handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed. Avoid breathing vapors. Do not get in eyes, on skin, or on clothing. Wear appropriate protective equipment.
Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Take off contaminated clothing and wash it before reuse.
Guarantee sufficient ventilation during and after use, in order to prevent vapour accumulation.
When handling large quantities, supply emergency spray.

Precautions against fire and explosion:

Keep away from sources of ignition - No smoking.
Take precautionary measures against static discharge.
Use only explosion-protected equipment/instruments. Do not weld.
In partially filled containers explosive mixtures may form.

Storage

Requirements for storerooms and containers:

Keep container tightly closed and in a well-ventilated place.
Keep container dry. Keep only in the original container.
Protect from heat and direct sunlight.
Store containers in upright position.

Hints on joint storage: Keep away from food, drink and animal feedingstuffs.

8. Exposure controls / personal protection

Exposure guidelines

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
100-42-5	Styrene	Canada: OEL 15 min	170 mg/m ³ ; 40 ppm
		Canada: OEL 8 hour	85 mg/m ³ ; 20 ppm
		Canada: OEL STEL	100 ppm
		Canada: OEL STEL	20 ppm
		Canada: OEL TWA	10 ppm
		Canada: OEL TWA	35 ppm
		Canada: VECD	75 ppm
		Canada: VEMP	50 mg/m ³
79-41-4	Methacrylic acid	Canada: OEL 8 hour	70 mg/m ³ ; 20 ppm
		Canada: OEL TWA	20 ppm
		Canada: VEMP	70 mg/m ³ ; 20 ppm
123-31-9	Hydroquinone	Canada: OEL 8 hour	2 mg/m ³
		Canada: OEL TWA	1 mg/m ³
		Canada: VEMP	1 mg/m ³

Engineering controls

Provide for good ventilation or exhaust system or work with completely self-contained equipment. Explosion protection required.
See also information in chapter 7, section storage.

Personal protection equipment (PPE)

Eye/face protection: Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.

Skin protection: Flame retardant, antistatic and chemical resistant protective clothing.
Protective gloves according to OSHA Standard - 29 CFR: 1910.138.
Glove material: butyl caoutchouc (butyl rubber) - Layer thickness: 0.7 mm
Breakthrough time: 30 min
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Respiratory protection: Respiratory protection must be worn whenever the TLV (WEL) levels have been exceeded.
Use filter type A (= against vapors of organic substances) according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2.
Use respiratory protection whenever ventilation is inadequate.

General hygiene considerations:
Take off contaminated clothing and wash it before reuse.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Avoid breathing vapors. Do not get in eyes, on skin, or on clothing.
Contaminated work clothing should not be allowed out of the workplace.
When using do not eat or drink.
Wash hands thoroughly after handling.
When handling large quantities, supply emergency spray.

Environmental exposure controls

Refer to 6.: Section "Environmental precautions".

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance: Physical state at 20 °C and 101.3 kPa: liquid
Color: yellow

Odor: characteristic

Odor threshold: No data available

pH: No data available

Melting point/freezing point: No data available

Initial boiling point and boiling range: No data available

Flash point/flash point range: 33 °C (ISO 3679-B)

Evaporation rate: No data available

Flammability: No data available

Explosion limits: No data available

Vapor pressure: No data available

Vapor density: No data available

Density: at 20 °C: 1.061 g/mL
at 40 °C: 1.052 g/mL

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Solubility:	No data available
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	490 °C
Thermal decomposition:	No data available
Viscosity, dynamic:	at 40 °C: 260 mPa*s
Viscosity, kinematic:	at 23 °C: > 61 s (ISO 2431, 6 mm) at 40 °C: 247.15 mm²/s

10. Stability and reactivity

Reactivity:	Flammable liquid and vapor. Vapors may form explosive mixtures with air.
Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	Heating will lead to pressure increase: Danger of bursting and explosion.
Conditions to avoid:	Keep away from heat sources, sparks and open flames. Protect from direct sunlight.
Incompatible materials:	Peroxides.
Hazardous decomposition products:	No decomposition when used properly.
Thermal decomposition:	No data available

11. Toxicological information

Toxicological tests

Toxicological effects: The statements are derived from the properties of the single components. No toxicological data is available for the product as such.

Acute toxicity (oral): Based on available data, the classification criteria are not met.

ATEmix calculated: ATEmix => 10,000 mg/kg

Acute toxicity (dermal): Based on available data, the classification criteria are not met.

ATEmix calculated: ATEmix => 10,000 mg/kg

Acute toxicity (inhalative): Acute Toxicity 4 (inhalative) = Harmful if inhaled.

ATEmix calculated:

ATEmix vapors: 37.56 mg/L

ATEmix dust/mist: 4.83

Skin corrosion/irritation: Skin Irritation 2 = Causes skin irritation.

Serious eye damage/irritation: Eye Irritation 2A = Causes serious eye irritation.

Sensitisation to the respiratory tract: Based on available data, the classification criteria are not met.

Skin sensitisation: Based on available data, the classification criteria are not met.

Germ cell mutagenicity/Genotoxicity: Based on available data, the classification criteria are not met.

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

Reproductive toxicity: Reproductive toxicity 2 = Suspected of damaging the unborn child.

Effects on or via lactation: Lack of data.

Specific target organ toxicity (single exposure): Specific Target Organ Toxicity (Single Exposure) 3 = May cause respiratory irritation.

Specific target organ toxicity (repeated exposure): Specific Target Organ Toxicity (Repeated Exposure) 1 = Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard: Based on available data, the classification criteria are not met.

Other information: Information about Styrene:

LD50 Rat, oral: > 5,000 mg/kg

LD50 Rat, dermal: > 5,000 mg/kg

LD50 Rat, inhalative (vapors): 11.8 mg/L/4h

Information about Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):

LD50 Rat, oral: > 2,000 mg/kg

LD50 Rabbit, dermal: > 2,000 mg/kg

LD50 Rat, inhalative: > 5 mg/L/4h

Chronic toxicity - Carcinogenic effect:

ACGIH, EPA, IARC, OSHA, and NTP carcinogen lists have been checked for selected similar materials or those components.

Styrene:

IARC Rating: Group 2B

OSHA Carcinogen: not listed

NTP Rating: listed

Symptoms

In case of inhalation: headache, Nausea, dizziness

In case of ingestion:

Danger of aspiration! Aspiration of this product into the lungs during vomiting, may cause serious injury or death.

12. Ecological information

Ecotoxicity

Aquatic toxicity:

Information about Styrene:

Fish toxicity: LC50 > 0.1 - 10 mg/L

Daphnia toxicity: EC50 > 0.1 - 10 mg/L

Algae toxicity: EC50 > 0.1 - 10 mg/L

Mobility in soil

No data available

Persistence and degradability

Further details:

Information about Styrene: readily biodegradable

Additional ecological information

Volatile organic compounds (VOC):

5.94 % by weight

General information:

Do not allow to enter into ground-water, surface water or drains.

Spilled quantities may penetrate into soil and lead to a contamination of ground water.

13. Disposal considerations

Product

Recommendation:

Incinerate as hazardous waste according to applicable local, state, and federal regulations.

Do not dispose of with household waste.

Do not empty into drains.

Package

Recommendation:

Dispose of waste according to applicable legislation.

Non-contaminated packages may be recycled.

14. Transport information

UN number

ADR/RID, IMDG, IATA-DGR:

UN 1866

UN proper shipping name

ADR/RID, IMDG, IATA-DGR:

UN 1866, RESIN SOLUTION

Transport hazard class(es)

ADR/RID: Class 3, Code: F1
IMDG: Class 3, Subrisk -
IATA-DGR: Class 3



Packing group

ADR/RID, IMDG, IATA-DGR:
III

Environmental hazards

Marine pollutant: no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available

Canada: Transportation of Dangerous Goods (TDG)

UN Number: UN1866
Shipping name: UN 1866, resin solution
TDG class: 3
Packing group: III
Explosive limit and limited quantity index: 5 L
Passenger carrying road or rail index: 60 L

Sea transport (IMDG)

UN number: UN 1866
Proper shipping name: UN 1866, RESIN SOLUTION
Class or division, Subsidiary risk: Class 3, Subrisk -
Packing Group: III
EmS: F-E, S-E
Special Provisions: 223 955
Limited quantities: 5 L
Excepted quantities: E1
Package - Instructions: P001, LP01
Package - Provisions: PP1
IBC - Instructions: IBC03
IBC - Provisions: -
Tank instructions - IMO: -
Tank instructions - UN: T2
Tank instructions - Provisions: TP1
Stowage and handling: Category A.
Properties and observations: Miscibility with water depends upon the composition.
Marine pollutant: no
Segregation group: none
Remarks: Transport in containers with max. 30 litres contents are not subject to the regulations of IMDG according to No 2.3.2.5.

Air transport (IATA)

UN/ID number: UN 1866
Proper shipping name: UN 1866, RESIN SOLUTION
Class or division, Subsidiary risk: Class 3
Packing Group: III
Hazard label: Flamm. liquid
Excepted Quantity Code: E1
Passenger and Cargo Aircraft: Ltd.Qty.: Pack.Instr. Y344 - Max. Net Qty/Pkg. 10 L
Passenger and Cargo Aircraft: Pack.Instr. 355 - Max. Net Qty/Pkg. 60 L
Cargo Aircraft only: Pack.Instr. 366 - Max. Net Qty/Pkg. 220 L
Special Provisions: A3
Emergency Response Guide-Code (ERG): 3L

15. Regulatory information

National regulations - Canada

Product: DSL: listed
Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): DSL: listed
Methacrylic acid: DSL: listed
N,N-Diethylaniline: DSL: listed
Hydroquinone: DSL: listed

16. Other information

Text for labeling: Contains 25 - 30 % Styrene, 2.5 - 10 % Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%), < 3 % Methacrylic acid, < 1 % N,N-Diethylaniline, < 0.1 % Hydroquinone.

Hazard rating systems:



NFPA Hazard Rating:

Health: 3 (Serious)

Fire: 3 (Serious)

Reactivity: 1 (Slight)

HMIS Version III Rating:

Health: 3 (Serious) - Chronic effects

Flammability: 3 (Serious)

Physical Hazard: 1 (Slight)

Personal Protection: X = Consult your supervisor

HEALTH	*	3
FLAMMABILITY		3
PHYSICAL HAZARD		1
X		



SAFETY DATA SHEET

according to WHMIS 2015 and ANSI Z400.1-2010

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Abbreviations and acronyms:

Acute Toxicity: Acute toxicity
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
Aquatic toxicity - acute: Hazardous to the aquatic environment - acute
Aquatic toxicity - chronic: Hazardous to the aquatic environment - chronic
AS/NZS: Australian Standards/New Zealand Standards
Aspiration Toxicity: Aspiration toxicity
ATEmix: Acute Toxicity Estimate of mixture
Carcinogenicity: Carcinogenicity
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
CLP: Classification, Labelling and Packaging
DMEL: Derived minimal effect level
DNEL: Derived no-effect level
EC: European Community
EC50: Effective Concentration 50%
EmS: Emergency Response Procedures for Ships Carrying Dangerous Goods
EN: European Standard
EQ: Excepted quantities
Eye Damage: Eye damage
Eye Irritation: Eye irritation
Flammable Liquid: Flammable liquid
Germ cell mutagenicity: Mutagenicity
IATA: International Air Transport Association
IATA-DGR: International Air Transport Association – Dangerous Goods Regulations
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IMDG Code: International Maritime Dangerous Goods Code
IMO: International Maritime Organization
LC50: Median lethal concentration
LD50: Lethal dose 50%
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
M-factor: Multiplication factor
OEL: Occupational Exposure Limit Value
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
Reproductive toxicity: Reproductive toxicity
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
Sensitization - skin: Skin sensitisation
Skin Corrosion: Skin corrosion
Skin Irritation: Skin irritation
STOT RE: Specific target organ toxicity - repeated exposure
STOT SE: Specific target organ toxicity - single exposure
TLV: Threshold Limit Value
TRGS: Technical Rules for Hazardous Substances
UN: United Nations
vPvB: Very persistent and very bioaccumulative
WEL: Workplace Exposure Limit
WHMIS: Workplace Hazardous Materials Information System

Reason of change: Changes in section 8: Occupational exposure limit values
Date of first version: 7/7/2020

Department issuing data sheet

Contact person: see section 1: Department responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.