

Safety Data Sheet acc. to OSHA HCS

Printing date 11/29/2024

Reviewed on 11/29/2024

1 Identification

· **Product identifier**

· **Trade name:** HYDROGRAL™ P

· **Article number:** 948306

· **Substance name:** Resin acids, hydrogenated, esters with pentaerythritol

· **Common CAS No.:** 64365-17-9

· **Application of the substance / the mixture**

Relevant identified uses : Manufacture, distribution and formulation of the substance, adhesives, coatings, intermediate, cleaning agents, rubbers production and processing, polymers production and processing, road and construction products, binders and release agents, paper and board production, lubricants, laboratory, agrochemicals, cosmetics, fuel.

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

LES DERIVES RESINIQUES ET TERPENIQUES (DRT)

30 rue Gambetta

BP 90206

F-40105 DAX CEDEX

FRANCE

Tel : 33-(0)5 58 56 62 00

Email : drt.fds@dsm-firmenich.com

· **Emergency telephone number:**

NCEC (24/24 – 7/7):

United States : +1 866 928 0789 (Toll free)

United States : +1 215 207 0061 (involves operator intervention to identify language)

Others countries : See section 16

2 Hazard(s) identification

· **Classification of the substance or mixture**

Combustible Dust May form combustible dust concentrations in air.

· **Label elements**

· **US label elements** The substance is classified and labeled according to the US system.

· **Hazard pictograms** Void

· **Signal word** Warning

· **Hazard statements**

May form combustible dust concentrations in air.

· **Precautionary statements**

P202 Do not handle until all safety precautions have been read and understood.

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

P234 Keep only in original container.

P243 Take precautionary measures against static discharge.

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

P262 Do not get in eyes, on skin, or on clothing.

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P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves / eye protection.
P285	In case of inadequate ventilation wear respiratory protection.
P301+P312	If swallowed: Call a poison center/doctor if you feel unwell.
P301+P330+P331	If swallowed: Rinse mouth. Do NOT induce vomiting.
P302+P352	If on skin: Wash with plenty of water.
P304+P312	IF INHALED: Call a POISON CENTER/doctor if you feel unwell.
P304+P341	If inhaled: If breathing is difficult, 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.
P314	Get medical advice/attention if you feel unwell.
P333	If skin irritation or rash occurs:
P362	Take off contaminated clothing.
P363	Wash contaminated clothing before reuse.
P402+P404	Store in a dry place. Store in a closed container.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Information pertaining to particular dangers for man and environment:**

Fine particles and powder may cause skin irritation by mechanical abrasion. However, based on available data, the classification criteria are not met.

Fine particles and powder may cause eye irritation by mechanical abrasion. However, based on available data, the classification criteria are not met.

Inhalation (dust or vapours/fumes generated by heated products) may cause respiratory irritation with throat discomfort, coughing or breathing difficulty.

Hot molten product: Burns may cause irreversible eye injury and blindness. Causes skin burns

· **Classification system:**

· **NFPA ratings (scale 0-4)**



Health = 0
Fire = 1
Reactivity = 0

· **HMIS ratings (scale 0-4)**



Health = 0
Fire = 1
Reactivity = 0

· **Other hazards**

Resin dusts may ignite on contact with electrostatic discharge or exposure to flames or other sources of ignition.

Hot molten product: may burn if ignited.

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· Results of PBT and vPvB assessment

· PBT:

According to Annex XIII of REACH Regulation, the substance is not considered to be Persistent, Bioaccumulative and Toxic.

· vPvB:

According to Annex XIII of REACH Regulation, the substance is not considered to be very Persistent and very Bioaccumulative.

3 Composition/information on ingredients

· Chemical characterization: Substance UVCB

· **CAS Number:** 64365-17-9

· **Identification number(s)**

· **EC number:** 264-848-5

· Additional information:

Chemical name: Pentaerythritol esters of hydrogenated rosin

CAS name: Resin acids, hydrogenated, esters with pentaerythritol

4 First-aid measures

· After inhalation:

Supply fresh air. If symptoms are experienced, get medical attention.

In case of unconsciousness place patient stably in side position for transportation.

· After skin contact:

Product at ambient temperature:

Immediately rinse with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritations occurs.

Hot product:

Immediately immerse or flush the burn area with large amounts of cold water (at least 15 minutes). Do not remove solidified material from burned skin as the damaged skin can be easily torn. Transfer immediately to hospital.

· After eye contact:

Product at ambient temperature:

Immediately rinse with water. Remove contact lenses if present and easy to do. Hold eyelids apart and flush eyes with plenty of cool low-pressure water for several minutes. If symptoms persist, consult a doctor.

Hot product:

Do not open eyelids if covered with resin. Immediately flush eyes with large amounts of water for at least 15 minutes. Do not remove solidified material from burned eye as the damaged tissues can be easily torn. Transfer immediately to hospital.

· After swallowing:

Do not induce vomiting. If the person is conscious, immediately rinse out mouth with water.

- No adverse health effects are expected from accidental ingestion of small amounts of this product. In case of lasting symptoms, consult a doctor.

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- For ingestion of large amounts: do not induce vomiting and get medical attention.
- **Most important symptoms and effects, both acute and delayed** No data available.
- **Indication of any immediate medical attention and special treatment needed**
For doctors: Mineral oil may be used to loosen and soften the material.

5 Fire-fighting measures

- **Suitable extinguishing agents:**
Carbon dioxide (CO₂), foam, fire-extinguishing powder, water spray.
Fight large fires with water spray or foam.
- **Special hazards arising from the substance or mixture** In case of fire, may release irritant and acrid fumes.
- **Advice for firefighters**
- **Protective equipment:**
Firefighters should wear appropriate protective equipment and self-contained breathing apparatus.
- **Additional information:** Do not inhale explosion gases or combustion gases.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Provide adequate ventilation
Avoid formation of dust.
- **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform the relevant authorities if the product has caused environmental pollution (soil, waterways, drains or sewers).
- **Methods and material for containment and cleaning up**
Pick up mechanically.
Avoid as much as you can the formation of dust.
Collect and seal in an appropriate container properly labelled for disposal.
- **Reference to other sections**
See section 8 for information on personal protection equipment.
See section 13 for disposal information.
- **Protective Action Criteria for Chemicals**
- **PAC-1:** Substance is not listed.
- **PAC-2:** Substance is not listed.
- **PAC-3:** Substance is not listed.

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7 Handling and storage

- **Precautions for safe handling**

Wear appropriate personal protective equipment. Provide adequate ventilation in the workplace.

Prevent formation of dust.

Provide suction extractors if dust is formed.

- **Information about protection against explosions and fires**

Protect against electrostatic charges.

Use only non-sparking tools.

Protect from heat.

Keep ignition sources away.

Do not use compressed air and do not blow to remove resin dust when cleaning the working clothes or equipment.

Explosion proof vacuum extractor can be used (if an appropriate maintenance is carried out).

- **Conditions for safe storage**

Store if possible under cover in a dry, cool and well-ventilated area.

Provide storage areas with suitable ventilation to eliminate dust.

All equipment including ventilation systems must be equipotential and earthed.

Avoid dust formation close to sources of ignition.

Protect from heat and direct sunlight.

All equipment including ventilation systems must be equipotential and earthed.

- **Further information about storage conditions**

- **Recommended storage temperature:** Store at a temperature between 5 and 30°C.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

Occupational Exposure Values for dust, particulates

ACGIH TLV TWA

- total dust 10 mg/m³

- respirable dust 3 mg/m³

OSHA PEL TWA

- total dust 15 mg/m³

- respirable dust 5 mg/m³

- **Additional information:**

This sheet is based on the current valid lists for occupational exposure limit values at the time of its preparation. The DNELs and PNECs values are derived from the chemical safety assessment conducted for REACH.

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· **Exposure controls**

· **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Immediately remove all soiled and contaminated clothing.

Avoid contact with eyes and skin.

Provide local exhaust or general room ventilation to minimize exposure to dust.

· **Protection of hands:**

Protective, impervious gloves resistant to chemicals (standard EN 374-1). They should be replaced regularly and if there is any indication of degradation or chemical breakthrough.

· **Eye protection:** Safety glasses (standard EN 166)

· **Body protection:**

Protective work clothing

Personnel exposed to HOT MOLTEN or HOT LIQUID material should wear protective clothing that provides protection against thermal burns. Required Protective Equipment: a) Long-sleeved protective shirt, long pants and work shoes; b) Hard hat and face shield; c) Long-cuff impervious gloves (Gauntlet type extending beyond wrist); d) Lined rain suit with protective hood or shoulder shroud or e) Full aluminized or thermal suit with hood.

9 Physical and chemical properties

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

· **General Information**

Form: Solid

Color: Yellow

· **Odor:** Pine

Light

· **Odor threshold:** Not determined

· **Change in condition**

Melting point/Melting range: No Melting point is observed. However a glass transition is observed.

Boiling point/Boiling range: Not applicable (the substance decomposes before boiling)

Softening point R&B: 93 - 105 °C (199.4 - 221 °F) (R&B)

· **Flash point:** > 200 °C (> 392 °F)

· **Auto-ignition temperature:** Not determined

· **Decomposition temperature:** > 300 °C (> 572 °F)

· **Danger of explosion:** The substance does not contain any chemical groups associated with explosive properties.

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· Oxidizing properties	The substance does not contain any chemical groups associated with oxidising properties.
· Vapor pressure:	Not determined.
· Specific gravity: Relative density at 20 °C (68 °F)	1.0-1.1
· Solubility in / Miscibility with Water:	Sparingly soluble.
· Partition coefficient (n-octanol/water):	Not determined
· Viscosity: Dynamic:	Not applicable.
· Additional information	No other data

10 Stability and reactivity

- **Reactivity** No data from specific reactivity tests are available for this product.
- **Chemical stability** The product is stable under normal storage and handling conditions.
- **Possibility of hazardous reactions**
Dust may ignite on contact with electrostatic discharge or exposure to flamme or other sources of ignition.
- **Conditions to avoid** Avoid dust formation when handling the product.
- **Incompatible materials:** No incompatible materials known.
- **Hazardous decomposition products:** No dangerous decomposition products known.
- **Additional information:**
The product is susceptible to compaction and oxidation during prolonged storage at a temperature above 30°C.

11 Toxicological information

- **Information on toxicological effects**
This substance belongs to the chemical category of rosin esters (rosin; hydrogenated rosin; oligomers of rosin ; which are esterified with alcohols typically methanol, ethylene glycol, di and triethylene glycol, glycerol and pentaerythritol).
Experimental data are not available for all the substances within this chemical category; information from one or several other members of the category are thus presented (properties may be predicted by interpolation to structurally related substances - according to ECHA guidance R6: QSARs and grouping of chemicals).
More information on H4R consortium website: www.h4rconsortium.com
- **Acute toxicity:**
Adequate information exists to characterise the acute toxicity of rosin esters category.
Acute toxicity – oral:
Information is available on the acute oral toxicity of methyl esters of hydrogenated rosin, diethylene glycol esters of rosin,

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glycerol esters of rosin, glycerol esters of hydrogenated rosin and pentaerythritol esters of rosin. The results demonstrate that rosin esters are not acutely hazardous after ingestion (LD50 >2000 mg/kg bw).

The physico-chemical properties of the category members indicate that they do not present a hazard with regard to aspiration (kinematic viscosity exceeds 20.5 mm²/s at 40°C).

Acute toxicity – inhalation:

No studies were available for review. The category members possess very low vapor pressure, negligible volatility and a high boiling point. Based on these physico-chemical properties, inhalation exposure is not expected to occur.

Acute toxicity – dermal:

Information is available on the acute dermal toxicity of methyl esters of hydrogenated rosin, diethylene glycol esters of rosin, glycerol esters of rosin, glycerol esters of hydrogenated rosin and pentaerythritol esters of rosin. The results demonstrate that rosin esters are not acutely hazardous after dermal exposure (LD50 >2000 mg/kg bw).

More information on the ECHA dossier webpage of this substance - section acute toxicity.

Conclusion :

Not classified for acute toxicity by the oral or dermal routes of exposure under EU Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulation (EC) No. 1272/2008. For non-EU countries, the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS) defines a fifth category for acute toxicity for chemicals with oral LD50 values between 2000 and 5000 mg/kg/bw. Insufficient data were available from this study to provide a definitive classification under UN GHS.

· **Primary irritant effect:**

Adequate information exists to characterise the skin irritation potential of rosin esters category. Information is available on the skin irritation potential of methyl esters of hydrogenated rosin, glycerol esters of rosin, glycerol esters of hydrogenated rosin and pentaerythritol esters of rosin. The results demonstrate that rosin esters are not irritating to the skin.

More information on the ECHA dossier webpage of this substance - section Irritation/corrosivity.

Conclusion :

Not classified for skin irritation according to EU Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulation (EC) No. 1272/2008 or UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS UN).

· **on the skin:**

No adverse effect was observed during a rabbit skin irritation study carried out according to the OECD test guideline 404.

· **on the eye:**

Adequate information exists to characterise the eye irritation potential of rosin esters category.

Information is available on the eye irritation potential of methyl esters of hydrogenated rosin, glycerol esters of rosin and pentaerythritol esters of rosin. The results demonstrate that rosin esters are not irritating to the eye. More information on the ECHA dossier webpage of this substance - section Irritation/corrosivity.

Conclusion :

Not classified for eye irritation according to EU Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulation (EC) No. 1272/2008 or UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS UN).

Fine particles and powder may cause eye irritation by mechanical effect.

· **Sensitization:**

Adequate information exists to characterise the skin sensitisation potential of rosin esters category. Information is available on the sensitisation potential of methyl esters of hydrogenated rosin, triethylene glycol esters of rosin, glycerol esters of rosin, glycerol esters of hydrogenated rosin, pentaerythritol esters of hydrogenated rosin and pentaerythritol esters of rosin. The results demonstrate that rosin esters are not sensitising in humans, mouse (Local Lymph Node Assay

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(LLNA) – OECD guideline 429) or guinea pig (Maximization Test – OECD guideline 406). More information on the ECHA dossier webpage of this substance - section sensitisation.

Conclusion :

Not classified for skin sensitization according to EU Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulation (EC) No. 1272/2008 or UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS UN).

· **Mutagenicity/genotoxicity:**

Adequate information exists to characterise the genetic toxicity of the rosin esters category (bacterial mutation in vitro, mammalian mutagenicity in vitro, mammalian cytogenicity in vitro).

Information is available on the genotoxic potential of rosin esters when tested :

- in bacterial (methyl esters of hydrogenated rosin, diethylene glycol esters of rosin, pentaerythritol esters of rosin) and,
- in mammalian (methyl esters of hydrogenated rosin, and pentaerythritol esters of rosin) systems.

The results demonstrate that rosin esters are not mutagenic or clastogenic in vitro. Study results demonstrate that rosin esters were not mutagenic or clastogenic in bacterial and/or mammalian cells in vitro. More information on the ECHA dossier webpage of this substance - section genetic toxicity

Conclusion :

Not classified mutagenic according to EU Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulation (EC) No. 1272/2008 or UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS UN).

· **Carcinogenicity:**

The substance is not expected to be carcinogenic based on available data on structurally related substances: no mutagenic effects observed and no hyperplasia or pre-neoplastic lesions noted in repeated dose toxicity studies.

· **Reproductive toxicity:**

Effects on fertility:

Six key reproductive/developmental toxicity screening studies (5 x OECD 422 and 1 x OECD 421) are available to evaluate the reproductive toxicity potential of rosin esters. Available data indicates that oral administration of these substances does not adversely impact reproduction in rats. Additionally, results from oral repeated dose toxicity tests conducted using members of the category have revealed no gross or microscopic changes in any reproductive organ at necropsy. More information on the ECHA dossier webpage of this substance - section toxicity to reproduction

Effects on developmental toxicity:

Five key guideline (OECD 414) pre-natal toxicity studies and two combined reproductive/developmental toxicity screening tests (OECD 421 and OECD 422) are available to evaluate the developmental toxicity potential of rosin esters. Glycerol esters of rosin, triethylene glycol esters of rosin, and pentaerythritol esters of rosin did not impact development in rats following oral exposure. However, methyl esters of rosin; ethylene glycol esters of rosin, methyl esters of hydrogenated rosin have demonstrated adverse effects on development post oral exposure in rats, however, these studies demonstrated clear NOAEL's (No Observed Adverse Effect Levels), and subsequently the derived-DNEL take these effects into account and are suitably protective for human health. More information on the ECHA dossier webpage of this substance - section toxicity to reproduction

Conclusion :

All member of Category 2 with the exception of Resin acids and rosin acids, esters with ethylene glycol (CAS RN 68512-65-2) are not classified for reproductive or developmental toxicity according to EU Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulation (EC) No. 1272/2008 or UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS UN).

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· **Specific target organ toxicity - single exposure:**

No specific target organ toxicity was observed in the LD₅₀ determination studies.

· **Specific target organ toxicity - repeated exposure:**

Information is available on the oral repeated dose toxicity of rosin esters category (simple, linear, and bulky). No treatment-related or biologically relevant findings were apparent in rats following oral sub-chronic dietary exposure to glycerol esters of rosin, ethylene glycol esters of rosin, triethylene glycol esters of rosin, glycerol esters of hydrogenated rosin and pentaerythritol esters of hydrogenated rosin. Due to the large number of toxicological studies available, it has not been possible to summarize all the information in the SDS. More information on the ECHA dossier webpage of this substance - section Repeated dose toxicity.

Conclusion :

Not classified for specific target organ toxicity – repeated exposure according to EU Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulation (EC) No. 1272/2008 or UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

· **Aspiration hazard:** Not applicable (solid).

· **Additional toxicological information:**

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)** Substance is not listed.

· **NTP (National Toxicology Program)** Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.

· **Additional toxicological information:**

Prolonged or repeated exposure to vapours/fumes generated by heating this product may cause respiratory irritation with throat discomfort, coughing or breathing difficulty.

12 Ecological information

· **Aquatic toxicity:**

This substance belongs to the chemical category of rosin esters (rosin; hydrogenated rosin; oligomers of rosin ; which are esterified with alcohols typically methanol, ethylene glycol, di and triethylene glycol, glycerol and pentaerythritol).

Experimental data are not available for all the substances within this chemical category; information from one or several other members of the category are thus presented (properties may be predicted by interpolation to structurally related substances - according to ECHA guidance R6: QSARs and grouping of chemicals).

More information on H4R consortium website: www.h4rconsortium.com

Reliable studies on Daphnia, fish and algae are available for pentaerythritol esters of rosin, glycerol esters of rosin, methyl esters of hydrogenated rosin and ethylene glycol esters of rosin.

The substances with the lowest molecular weights in the category are Resin acids and rosin acids, methyl esters and Resin acids and rosin acids, hydrogenated, methyl esters. The lowest EC50 available for these substances is 27 mg/L, from a Daphnia study with the test material methyl esters of hydrogenated rosin. This result is read across to Resin acids and rosin acids, methyl esters for classification purposes. As this EC50 is > 1 mg/L an acute environmental classification is not appropriate. Neither methyl esters of rosin or methyl esters of hydrogenated rosin are readily biodegradable therefore as the lowest EC50 is >10 <100 mg/L a chronic classification of Chronic Category 3 is applied for both substances in accordance with the CLP regulation.

Based on the available ecotoxicity data, substances in the Rosin esters category with lower molecular weights are more

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toxic to aquatic organisms than those with higher molecular weights. This is likely to be due to the lower molecular weight substances being more soluble, whereas higher molecular weight substances are poorly soluble and less bioavailable. For higher molecular weight esters (with molecular weights higher than for the Methyl esters), no effects were seen at the limit of solubility in the available acute ecotoxicity studies and thus no environmental classification has been applied. Short-term aquatic toxicity values were determined in tests conducted with Water Accommodated Fractions (WAF). Loading rates of the tested item are much higher than the water solubility. LL50 and EL50 similar to LC50 and EC50 are obtained by this method.

For all esters (except for methyl esters) :

LL₅₀ (96 h), fish (*Pimephales promelas*): > 100 mg/L (nominal concentration – OECD 203)

EL₅₀ (48 h), daphnia (*Daphnia magna*): > 100 mg/L (nominal concentration - OECD 202)

EL₅₀ (72 h), alga (*Pseudokirchneriella subcapitata*) : > 100 mg/L (based on growth rate – OCDE 201)

The EL50 value was greater than the highest loading rate for all category members tested.

More information on the ECHA dossier webpage of this substance - section ecotoxicological summary.

• **Toxicity to aquatic microorganisms**

Results are available from the toxicity controls carried out as part of OECD 301B Modified sturm tests. Results are available for methyl esters of rosin, diethylene glycol esters of rosin, glycerol esters of rosin, glycerol esters of hydrogenated rosin, pentaerythritol esters of rosin and pentaerythritol esters of hydrogenated rosin (Inveresk, 2002a). All substances showed no inhibition of sewage sludge microorganisms at 20 mg DOC/L. As no toxicity to microorganisms was observed at the concentrations used for the toxicity controls in any of the biodegradation studies, rosin ester substances are not considered to be toxic to microorganisms.

More information on the ECHA dossier webpage of this substance - section ecotoxicological summary.

• **Persistence and degradability**

Biodegradation studies are available for the following category members: methyl esters of rosin, pentaerythritol esters of rosin, glycerol esters of rosin, glycerol esters of hydrogenated rosin; with pentaerythritol esters of hydrogenated rosin, and diethylene glycol esters of rosin. All studies are GLP-compliant and follow standard guidelines. They are considered acceptable for use and have been given Klimisch scores of 1. Results of testing of representative members of the category of rosins esters have failed to demonstrate ready biodegradation in OECD 301B, 28 day ready biodegradation screening studies.

The maximum percent of biodegradation across 7 reliable studies was 50.7% after 28 days. Therefore, rosin esters are not considered to be readily biodegradable. However, biodegradation studies conducted with UVCB substances are not always relevant, as individual constituents within a UVCB will have different biodegradation potential.

More information on the ECHA dossier webpage of this substance - section Environmental fate & Pathways

• **Bioaccumulative potential**

Calculated BCF values for rosin esters range from 554.8 to 8053 L/kg for mono-esters and 3.82 to 137.2 L/kg for di-esters; the BCF for tri-esters and tetra-esters is 3.162. Measured BCF values for resin acids range from <25 to 130. More information on the ECHA dossier webpage of this substance - section Environmental fate & Pathways

• **Mobility in soil**

Adsorption/desorption :

Calculated log K_{oc} values for rosin esters range from 2.86 to 3.94 for mono-esters, 6.79 to 8.8 for di-esters, 11.94 to 13.93 for tri-esters and 17.20 to 18.98 for tetra-esters.

More information on the ECHA dossier webpage of this substance - section Environmental fate & Pathways

• **Results of PBT and vPvB assessment**

• **PBT:** further information relevant for a full PBT assessment is necessary

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- **vPvB:**
According to Annex XIII of REACH Regulation, the substance is not considered to be very Persistent and very Bioaccumulative.
- **Other adverse effects** No data available.

13 Disposal considerations

- **Waste treatment methods** National and regional regulations have to be adhered to.
- **Recommendation:** The product has to be disposed of in an authorised incinerator, according to regulation.
- **Uncleaned packagings:**
- **Recommendation:** Packaging has to be sent to an authorised waste treatment facility, for recycling or disposal.

14 Transport information

· UN-Number	Not classified as a dangerous good under transport regulation.
· UN proper shipping name · DOT, ADR	Not classified as a dangerous good under transport regulation. Void
· Transport hazard class(es)	Not applicable.
· Packing group	Not applicable.
· Environmental hazards:	Not classified as a dangerous good under transport regulation.
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	When shipped over 100°C and below flash point: Class: 9 Item: M9 Packaging group: III Danger code: 99 Hazard label: 9 UN number: 3257 ELEVATED TEMPERATURE LIQUID, N.O.S. (Pentaerythritol esters of hydrogenated rosin)
· UN "Model Regulation":	Void

15 Regulatory information

- **SARA Section 355 (extremely hazardous substances)** Substance is not listed.
- **SARA Section 313 (specific toxic chemical listings)** Substance is not listed.

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· TSCA (Toxic Substances Control Act)

64365-17-9 Resin acids and Rosin acids, hydrogenated, esters with pentaerythritol

· Hazardous Air Pollutants Substance is not listed.

· Prop 65 - Chemicals known to cause cancer or reproductive toxicity Substance is not listed.

· Cancerogenicity categories
· EPA (Environmental Protection Agency) - 12th Report on Carcinogens Substance is not listed.

· TLV (Threshold Limit Value) Substance is not listed.

· US label elements The substance is classified and labeled according to the US system.

· Hazard pictograms Void

· Signal word Warning

· Hazard statements

May form combustible dust concentrations in air.

· Precautionary statements

P202 Do not handle until all safety precautions have been read and understood.

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

P234 Keep only in original container.

P243 Take precautionary measures against static discharge.

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

P262 Do not get in eyes, on skin, or on clothing.

P264 Wash thoroughly after handling.

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

P280 Wear protective gloves / eye protection.

P285 In case of inadequate ventilation wear respiratory protection.

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

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P302+P352 If on skin: Wash with plenty of water.

P304+P312 IF INHALED: Call a POISON CENTER/doctor if you feel unwell.

P304+P341 If inhaled: If breathing is difficult, 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.

P314 Get medical advice/attention if you feel unwell.

P333 If skin irritation or rash occurs:

P362 Take off contaminated clothing.

P363 Wash contaminated clothing before reuse.

P402+P404 Store in a dry place. Store in a closed container.

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

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

US

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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.

This safety datasheet is provided only for information as it is not required according to article 31 of REACH regulation.

NCEC In-Country Numbers (24/24 - 7/7):

Global / English speaking countries : +44 1865 407333

Middle East/Africa : +44 1235 239671* (English, Arabic, French, Portuguese, Farsi)

Americas : +1 215 207 0061* (English, Spanish, French, Portuguese)

East/South East Asia : +65 3158 1074* (English, Bengali, Cantonese, Indonesian, Hindi, Japanese, Korean, Malay, Mandarin, Sinhalese, Urdu, Tagalog, Thai, Vietnamese)

Europe : +44 1235 239670*

*(involves operator intervention to identify language)

· **Version 14.1**

· **Contact:**

· **Date of preparation / last revision 11/29/2024 / -**

· **Abbreviations and acronyms:**

CLP: Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging

H4R : Hydrocarbon Resins & Rosin Resins REACH Consortium - <https://h4rconsortium.com>

ECHA: European Chemicals Agency

EC: European Commission

ISO : International Organization for Standardization

Directive 2012/18/EU: Directive of the European Parliament and of the Council of 4 July, on the control of major-accident hazards involving dangerous substances

IFRA : International Fragrance Association

OECD: Organisation for Economic Co-operation and Development

ECVAM : European Centre for the Validation of Alternative Methods

QSAR: Quantitative Structure Activity Relationship

DNA: Deoxyribonucleic Acid

PBT: Persistent, Bioaccumulative and Toxic substance.

vPvB: very Persistent and very Bioaccumulative substance.

UVCB: Substances of unknown or variable composition, complex reaction products or biological materials

SVHC: Substances of Very High Concern

BCF: Bioconcentration Factor

CMR: Substance classified as Carcinogenic, Mutagenic or Toxic for Reproduction

Koc: Organic carbon/water partition coefficient. It represents the potential of retention of the substance on soil organic matter

NOEL: No Observed Effect Level

NOELr: Initial loading rate of the substance without observed effect

NOAEL: No Observed Adverse Effect Level

NOEC: No Observed Effect Concentration

NOAEC: No Observed Adverse Effect Concentration

LOEC: Lowest Observed Effect Concentration

LOAEC: Lowest Observed Adverse Effect Concentration

LOAEL: Lowest Observed Adverse Effect Level

EC₁₀: Concentration which leads to a 10% reduction in treated organism responses compared to untreated organism responses (algae) or concentration which causes effects to 10 % of the tested organisms (daphnids)

EC₅₀: Concentration which leads to a 50% reduction in treated organism responses compared to untreated organism responses (algae) or concentration which causes effects to 50 % of the tested organisms (daphnids)

EL₅₀ : Loading rate which leads to a 50 % reduction in treated organisms responses compared to untreated organism responses (algae) or loading rate

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which causes effects to 50 % of the tested organisms (daphnids)
LC₅₀: Lethal concentration for 50% of exposed animals
LD₅₀: Lethal dose for 50% of animals exposed by oral or dermal route
LL₅₀: Median lethal loading rate (lethal level for 50 % of fish exposed)
LC100 : Lethal concentration for 100% of exposed animals
GPMT: Guinea Maximisation Test - Magnusson and Kligman test
LLNA: Local Lymph Node Assay
CO₂: Carbon dioxide
NLP: No Longer Polymer
bw: body weight
dw: dry weight
ww : wet weight
ppm : parts per million

· **Sources**

Literature and company data

REACH dossier data

<https://echa.europa.eu/registration-dossier/-/registered-dossier/15312/1>

www.h4rconsortium.com

· **Data compared to the previous version:**

Section 1 : Product number addition, modification of the supplier

Section 15 : Modification of CAS in TSCA section

US