

Luminescent roadmarking

Recommended application

Finishing coating on surfaces as asphalt, concrete, paving, bitumen, parking lots, lining, tennis courts, playgrounds etc.

Technical data 1

Appearance: lightly glowing matte finish

Color: white, green, yellow, red and blue

Mass: 1.3 +- 0.1

Solids content: 57 weight % 45 volume %

Recommended thickness: 54 µm dry thickness, corresponds to 120 µm wet thickness

Flashpoint: not flammable

VOC-content: 40g/l

Category: A/i

EU border content: 140 g/l (2010)

Drying times at 20 degrees Celsius: 60%

Tack free: 30 minutes

Re-paintable: 1 hour (carefully walkable)

Hardened: product is after approximately 24 hours hardened sufficiently to allow light traffic, such as cars of bicycles. In the case of sporadic heavy traffic, it is recommended to wait for a time of 48 hours.

(Extreme) cold or moist (weather) conditions can lengthen the process of hardening.

Efficiency: theoretically 4 – 8 m² per liter, depends on surface type.

Practically: dependable on multiple factors such as porosity and roughness of the surface, as well as the loss of material while applying, the average usage will be about 4 m² per liter.

Technical data 2

Appearance: satin (40% at 60)

Mass: approx. 1.23 kg/l (pre-mixed product), dependable on color, 1.05 kg/l for 9211

Solids content: 37 volume % +- 3.0 (pre-mixed product) dependable on color

Recommended thickness: 40 µm dry, corresponds to 110 µm wet

For floors: 60 µm dry, corresponds to 160 µm wet

Heat resistant: up to 90 (dry), above 65 , paint could yellow

VOC-content: max 35 g/l

Pre-mixed, ready-to-use mix: 35 g/l

Category: A/j

EU border content: 140 g/l (2007) / 140 g/l (2010)

Drying times at 20 /50 % r.v.

Tack free: 1.5 - 2 hours

Manageable: 4 hours

Re-paintable: 24 hours

Fully hardened: 2 days

Efficiency: theoretically 6.2 m² /l at 60 µm dry (depends on color) for floors. 9.2 m²/l at 40 µm (depends on

color) for other applications. Practical: dependable on a variety of factors such as porosity and the roughness of the surface, as well as the loss of material while applying. (DIN 53220)

Technical data 3

Luminorpearls is a combination of glowing crystals and glass pearls with the highest reflectivity.

The sophisticated and accurate production process produces the optimal afterglow-result, all with saving the original reflectivity of the beads. The composition of then crystal-clear synthetic resin, highly-reflective glass beads and luminescent crystals results in a product which is extremely well suitable for visible lining and the relevant demands and regulation. Can withstand extremely high and low temperatures.

Luminorpearls are:

- Environmentally friendly
- Highly stable
- Ecological
- Not radioactive nor toxic
- A durability of over 20 years
- Highly effective

Identification of dangers

1. Classification of product or mixture

Product description: mixture

Classification according to regulation (EG) Nr.1272/2008[CLP/GHS]:not classified

Complete text of R- and H-sentences as mentioned above: heading 16

More information on health risks and symptoms: heading 11

2. Label elements

Signal word: no signal word

Hazards: no known significant effects or critical dangers.

Precautions

General: keep out of reach of children. Read label before using. When obtaining medical information, keep label or container in reach.

Prevention: does not apply

Reaction: does not apply

Storage: does not apply

Disposal: contents and container need to be disposed of according to local, regional, national and international guidance.

Additional label elements: contains mixture of 5-chloor-2-methyl-4-isothiazolin-3-on [EC no. 247-500-7] and 2-methyl-2H-isothiazool-3-on [EC no... 220-239-6] (3:1) and adipohydrazide. Can cause an allergic reaction. Safety-information sheet is available on request.

Appendix XVII – limitations with regard to the production, distributing and using certain dangerous substances, mixtures and products: does not apply

Special packaging requirements

Contents required to have child-resistant closure: does not apply

Palpable safety warning: does not apply

Other dangers

Substance meets criteria for PBT in accordance to regulation (EC) No. 1907/2006, Appendix XIII: does not apply

Substance meets criteria for zPzB in accordance to regulation (EC) No. 1907/2006, Appendix XIII: does not apply

Other dangers not resulting in classification: none known

Composition and information contents

Substance/preparation: mixture

This product does not contain any excipients which, insofar as the current knowledge of the producer, are classified and contribute to the classification of the product and hence require reporting in this section.

Type

[1] Substance classified as dangers for health and/or environment

[2] Substance with workplace exposure limits

[3] Substance meets the criteria for PBT according to regulation (EG) No. 1907/2006, appendix XIII

[4] Substance meets the criteria for PBT according to regulation (EG) No. 1907/2006, appendix XIII

[5] Substance of equivalent concern

First aid measures

Description of first aid measures

General: In case of doubt or persistent symptoms, always seek medical assistance. If a person falls unconscious, never admit anything through mouth. Place unconscious person in recovery position and alert medical services.

Eye contact: Check for contact lenses and if so, remove them. Flush eyes with running water for at least 15 minutes, keeping eyelids open. Immediately seek medical attention.

Inhalation: get person to fresh air. Keep person warm and calm. If patient is not breathing, irregularly breathing or a respiratory arrest occurs, artificial respiration or oxygen is to be administered by trained personnel.

Skin contact: remove contaminated clothing and shoes. Wash skin thoroughly with water and soap or a recognized skin cleanser. DO NOT USE solvents or thinners.

Swallowing: if swallowed, seek immediately medical assistance and show container of label. Keep person warm and calm. DO NOT induce vomiting.

Protection of first aid responders: no action shall be taken involving personal risk or in the case of insufficient training.

Main acute and secondary symptoms and effects

No data available on mixture itself. See chapter 2 and 3 for details.

Exposure to concentrations of solvent vapors in the preparation of the allowable limit exceeds occupational exposure can have adverse health effects such as irritation of mucous membranes and respiratory tract, as well as adverse effects on the kidneys, liver and central nerve system. Symptoms and signs include headaches, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, unconsciousness.

When solvents enter body through skin, solvents may cause a number of the above effects. Repeated or prolonged contact with mixture may lead to the disappearance of the natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in eyes, irritation and reversible damage may occur. Into account are taken (where known), delayed and immediate effects as well as chronic effects of components from short and long term exposure through ingestion, inhalation, skin and eyes.

Contains adipohydrazide. Could cause an allergic reaction.

Indication of any immediate medical attention and special treatment.

Remark towards doctor: treat symptomatically. Contact specialist immediately for poison treatment when large amounts have been ingested or inhaled.

Specific treatments: no specific treatment.

See toxicological information (heading 11)

Measures against fire

Means of extinguishing

Suitable means of extinguishing: recommended: alcohol-resistant foam, CO₂, powders, water mist.

Unfit means of extinguishing: do not use waterjet.

Special dangers caused by substance or mixture

Risks of substance or mixture: in the event of a fire, dense black smoke occurs. Exposure to decomposition products can be dangerous to health.

Dangerous thermal decomposition products: decomposition products may include: carbon monoxide, carbon dioxide, smoke, nitrogen dioxide.

Advice for firefighters

Special protective measures for firefighters: sealed containers exposed to fire, cool down with water. Prevent water from entering sewage or waterways.

Special protective gear for firefighters: suitable breathing apparatus may be required.

Extra information: no unusual danger in event of fire.

Measures at accidental release of mixture or substance

6.1 personal prevention measures, protective equipment and emergency procedures

Individuals other than emergency services: ignition sources must be removed and room has to be ventilated. Avoid breathing vapor or mist. Refer to protective measures in sections 7 and 8.

Emergency services: if specialized clothing is required to deal with spilled product, read section 8 for any information regarding suitable and unsuitable materials. Also see information at heading 'individuals other than emergency services'.

6.2 Environmental preventive measures: do not allow to enter drains or watercourses. Inform appropriate authorities in accordance with local regulations in event of drainage into lakes, rivers or drains.

6.3 Containment and cleaning methods and material: contain spillage with non-combustible materials such as sand, earth, vermiculite or diatomaceous earth and collect in container for disposal according to local regulations (see heading 13). When cleaning, use a detergent. Avoid usage of solvents.

6.4 References to other headings: heading 1 for contact in case of emergency. Heading 8 for information on appropriate personal protective equipment. Heading 13 for additional waste treatment information.

Handling and storage

Precautions for safely handling the substance or mixture: keep away from heat sources, sparks and open flames. Use only spark-free tools. Avoid any contact with skin and/or eyes. Avoid inhaling substance, particles and mist or aerosols, caused by applying mixture. Avoid inhaling sanding dust. In space where product is used, stored or processed, DO NOT allow eating, drinking or smoking. When applying product, wear appropriate personal protective equipment (see heading 8). Do not use pressure to empty container. Packaging is not under pressure. Store in containers of same material as the original packaging. ALWAYS comply with health and safety at work.

Conditions for safe storage, including incompatibilities: store in accordance with local regulations. Notes on joint storage: keep away from oxidizing agents, strong alkalis, and strong acids. Further information about storage conditions: precautions on label must be observed. Do not store at temperatures below 0 °C (32 °F). Store in a dry, cool and well ventilated area. Keep away from heat and direct sunlight. Keep container tightly closed. Keep away from sources of ignition. Do not smoke. Prevent access by unauthorized. Opened containers should be carefully resealed and must be kept upright to prevent leaking.

Specific end-use recommendations: not available

Solutions specifically for industrial sector: not available

Precautions to protect form exposure/personal protection

Control parameters

Occupational exposure limits: no exposure limit value known.

Recommended monitoring procedures: If this product contains ingredients with exposure limits, monitoring persons, workplace environment or biological monitoring may be required to test effectiveness of ventilation or other control measures and/or to determine the necessity of respiratory protective equipment. Methods to determine the exposure by inhalation to chemical agents and national guidelines for the determination of hazardous substances, refer to the European Standard EN 689.

DNEL's/DMEL's

2. Measures to control exposure

Appropriate engineering measures: provide adequate ventilation. Where reasonably possible, this should be carried out by means of local exhaust ventilation.

Individual safety precautions

Hygienic: wash hands, forearms and face thoroughly after handling chemical products before you eat, drink or use the toilet at the end of a workday. Appropriate techniques must be used to remove potentially contaminated clothing. Wash contaminated clothing before re-using. Ensure eye-wash stations and safety showers are present at workspace.

Protecting eyes/face: safety goggles with side flaps. (EN166)

Protection of the skin

Protecting hands: No single glove material nor a combination of materials is unlimited resistant to a single chemical substance or combination of substances. The breakthrough-time must be greater than the total time of usage of the product. The instructions provided by the glove manufacturer and information regarding use, storage, maintenance and replacement must be followed. Gloves should be replaced regularly and if there is any sign of damage of the glove material. Always ensure that the gloves are free from defects and that they are properly kept and used. The performance or effectiveness of the glove may be reduced by physical or chemical damage and poor maintenance. Barrier creams may help to protect exposed skin. However, do not apply once exposure has occurred.

Gloves: use following type of glove when handling over extended periods of time or reoccurring use.

Body protection: recommended: >8 hours (breakthrough time): nitrilrubber. The recommendation for the type or types of gloves when handling of wearing this product is based on information from the following sources: EN 374-3: 2003. The user must check that the final choice for a certain type of gloves for handling this product is the most appropriate and is taken into account the particular conditions of use, such as incorporated the risk to the user. Wear overalls or long-sleeved shirt. (EN467)

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected on the basis of the task being performed and the risks involved and should be approved by a specialist before using this product.

Protection of respiratory system: does not apply. The choice of a mask should be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the mask. Recommended: - organic vapor (Type A) and particulate filter (EN 140).

Controlling environmental exposure: Do not drain into sewage or watercourses.

Physical and chemical characteristics.

Information regarding physical and chemical characteristics

Appearance

Physical condition: fluid

Color: white

Odor: not available

pH: 7.5 – 8

Melting/freezing temp.: 0 °C

Starting boiling temp. and boiling procedure: >100 °C

Flashpoint: Product does not ignite.

Evaporation rate: <1 (butyl acetate = 1)

Flammability (solid, gas): Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and shocks and mechanical influences. Not flammable, but will burn on prolonged exposure to a flame or to a high temperature.

Burning time: does not apply

Burning speed: does not apply

Upper/lower flammability or explosive limit value: does not apply

Vapour pressure: 2.3 kPa [room temperature]

Vapour density: >1 [air = 1]

Relative density: 1.3

Solubility: soluble in the following materials: cold and hot water. Very slightly soluble in the following materials: methanol and acetone.

Solubility in water: not available

Partition coefficient noctanol / water: not available

Ignition temperature: not available

Decomposition temperature: not available

Viscosity: not available

Explosive properties: does not apply

Oxidizing properties: not available

Additional information: no additional information

Stability and reactivity

1. Reactivity: no specific test data for this product or any of its ingredients available with regard to its reactivity.
2. Chemical stability: stable in recommended storage-, handling- and using conditions.
3. Possible dangerous chemical reactions: in normal storage conditions and when used rationally, no dangerous chemical reactions will occur.
4. Avoidable conditions: when exposed to high temperatures, dangerous decomposing agents can occur.
5. Incompatible chemical materials: keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, and strong acids.
6. Dangerous decomposing agents: when stored and used in normal conditions, normally there won't be formed any hazardous waste products. During fire, toxic gasses such as CO and CO₂ will be formed.

Toxicological information

There is no data available on the mixture itself. See heading 2 and heading 3 for details. Exposure to concentrations of solvent vapors in the preparation of the allowable limit that exceeds occupational exposure can have adverse health effects such as irritation to the mucous membranes and respiratory tract, as well as adverse effects on the kidneys, liver and central nerve system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, unconsciousness.

When taking in solvents through the skin, a number of the above effects may occur. Repeated or prolonged contact with the mixture may lead to the disappearance of the natural grease from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, irritation and reversible damage may result. This takes into account (where known), delayed and immediate effects and also chronic effects of components from short and long term exposure through ingestion, inhalation, skin and the eyes. Contains adipohydrazide. Can cause allergic reactions.

Acute toxicology

Irritation/corrosion

Result/resume: not available

Hypersensitivity

Result/resume: not available

Mutagenicity

Result/resume: not available

Carcinogenicity

Result/resume: not available

Reproductive toxicity'

Result/resume: not available

Teratogenicity

Result/resume: not available

STOT single-exposure

Result/resume: not available

STOT repeated exposure

Result/resume: not available

Danger when inhaled

Result/resume: not available

Other information

Result/resume: not available

Ecological information

1. Toxicology

No information available on the product itself. Do not drain into sewage or watercourses.

Conclusion/resume: not available

1. Persistence and degradability

Conclusion/resume: according to EG-criteria: is expected to be inherent biologically degradable.

1. Bioaccumulation

1. Mobility in soil

Separation coefficient soil/water (Koc): not available

Mobility: not available

1. Results PBT- and zPzB-rating

PBT: does not apply P: not available B: not available T: not available

zPzB: does not apply zP: not available zB: not available

1. Other harmful effects: significant effects or critical dangers are not known.

Instructions for removal

13.1 Waste treatment methods

Product

Methods of disposal: The generation of waste should be avoided wherever possible or be reduced to a minimum. Large quantities of waste product residues should not be disposed of via the sewage but processed in an appropriate wastewater treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. The removal of this product, solutions and any by-products should be in compliance with applicable legislation in the field of environmental protection and disposal and any regional or local authority regulations.

Hazardous waste: To present knowledge of the supplier, this product is not regarded as hazardous waste as defined by EU Directive 91/689 / EC instructions removal.

Do not allow to enter drains or watercourses. Dispose of product according to all applicable federal, state and local regulations.

European Waste Catalogue (EWC)

The European classification as waste for this product: ??

