PipePaint
Material Safety Data Sheet (MSDS)
Format aligned with the Occupational Safety and Health Act and MoEL Notice No. 2026-26
2026-09-02 | Version 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Product name : PipePaint

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Industrial/professional use : Industrial; for professional use only

Use of the substance/mixture : Solvent-free coating for heating pipes in horticultural greenhouses

1.2.2. Uses advised against

No additional information available.

1.3. Details of the supplier of the safety data sheet

Manufacturer	Manufacturer
Lumiforte EMEA B.V. Geerstraat 8 5111 PS Baarle-Nassau The Netherlands T +31 (0)13 507 53 99 safety@lumiforte.com www.lumiforte.com	Lumiforte EMEA SAS 1 Rue Gaston Monmousseau 38130 Echirolles France T +33 (0)4 76 23 20 54 safety@lumiforte.com www.lumiforte.com

1.4. Emergency telephone number

Service / organisation	Coverage / address	Emergency telephone	Availability / note
119 Emergency Medical, Fire and Rescue Service National Fire Agency	Nationwide Republic of Korea	119 (within Korea)	24 hours, 365 days; public emergency service.
Seoul Poison Control Center Korea University Anam Hospital	73 Goryeodae-ro Seongbuk-gu, Seoul 02841 Republic of Korea	1855-2221	Mon-Fri 09:00-17:00 KST. In an acute emergency call 119.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to the Occupational Safety and Health Act and MoEL Notice No. 2026-26:

Hazard class	Category	Hazard statement
Skin sensitisation	Category 1	H317
Hazardous to the aquatic environment - long-term hazard	Category 2	H411

Adverse effects: may cause an allergic skin reaction. Inhalation of spray, mist or mineral dust generated from dried coating may irritate the respiratory tract. Toxic to aquatic life with long lasting effects.

2.2. Label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H317 May cause an allergic skin reaction.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : P261 Avoid breathing spray, mist or dust.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of water and soap.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.
P501 Dispose of contents/container in accordance with applicable local and national regulations.

2.3. Other hazards

Spray application may generate respirable droplets or aerosol. Mechanical removal, sanding or brushing of the dried coating may generate mineral dust. Previously sensitised persons may react to trace isothiazolinone preservatives. Wet spills may make floors very slippery.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable.

3.2. Mixtures

The exact formulation is confidential. Components are shown where relevant for hazard communication or occupational exposure control. Raw-material trade names are not used.

Chemical name	Product identification	% w/w	Ingredient GHS classification / hazard information
Titanium dioxide, rutile pigment	CAS: 13463-67-7	10 - 20	Not classified for carcinogenicity or repeated-exposure target-organ toxicity for the pigment grade used. Manufacturer particle analysis: aerodynamic fraction ≤10 µm is <1% (EN 15051-2). Occupational dust controls may apply.
Trimethylolpropane	CAS: 77-99-6	<0.2	Reproductive toxicity, Category 2; H361d; H361f (supplier classification). Does not trigger classification of PipePaint at the concentration present.
Talc	CAS: 14807-96-6	5 - 15	Not classified; occupational dust exposure limits may apply. Supplier states <0.1% respirable quartz.
Trizinc bis(orthophosphate)	CAS: 7779-90-0	5 - 15	Aquatic Acute 1; Aquatic Chronic 1 (M=1)
Sodium nitrite	CAS: 7632-00-0	0.1 - <1	Ox. Sol. 3; Acute Tox. 3 (oral); Aquatic Acute 1
2,4,7,9-Tetramethyldec-5-yne-4,7-diol	CAS: 126-86-3	<1	Eye Dam. 1; Skin Sens. 1B; Aquatic Chronic 3
2-Methylisothiazol-3(2H)-one (MIT)	CAS: 2682-20-4	<0.1	Acute Tox.; Skin Corr.; Eye Dam.; Skin Sens. 1A; Aquatic Acute 1; Aquatic Chronic 1
1,2-Benzisothiazol-3(2H)-one (BIT)	CAS: 2634-33-5	<0.1	Acute Tox.; Skin Irrit.; Eye Dam.; Skin Sens. 1A; Aquatic Acute 1; Aquatic Chronic 1

Chemical name	Product identification	% w/w	Ingredient GHS classification / hazard information
Reaction mass of CMIT/MIT (3:1)	CAS: 55965-84-9	<0.1	Acute Tox.; Skin Corr.; Eye Dam.; Skin Sens. 1A; Aquatic Acute 1 (M=100); Aquatic Chronic 1 (M=100)
Other non-hazardous ingredients and water	Proprietary mixture components	Balance	Not classified at product concentration

The concentration ranges above are public disclosure ranges and are not the exact confidential formulation. Product classification was calculated using the exact formulation, the supplied raw-material SDSs and applicable country-specific mixture rules.

SECTION 4: First aid measures

4.1. Description of first aid measures

General : Never give anything by mouth to an unconscious person. If unwell, seek medical advice and show the label or this SDS where possible.

Inhalation : Move to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing discomfort occurs or symptoms persist.

Skin contact : Remove contaminated clothing. Wash skin thoroughly with water and soap. If skin irritation or rash occurs, obtain medical advice. Wash clothing before reuse.

Eye contact : Rinse cautiously with clean water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.

Ingestion : Rinse mouth. Do not induce vomiting. Contact a poison information service or physician if unwell.

4.2. Most important symptoms and effects, both acute and delayed

May cause an allergic skin reaction. Inhalation of spray, mist or airborne dust may cause mechanical respiratory irritation. Eye contact may cause temporary irritation. Ingestion may cause gastrointestinal discomfort.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. For specialist advice, contact the national poison information service.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam, dry powder, carbon dioxide, water spray or sand. Select media suitable for the surrounding fire.

Unsuitable extinguishing media : Do not use a strong water jet.

5.2. Special hazards arising from the substance or mixture

The product is not flammable. Heating or fire may produce irritating or toxic fumes, including carbon monoxide, carbon dioxide, nitrogen oxides, ammonia and zinc/phosphorus oxides.

5.3. Advice for firefighters

Cool exposed containers with water spray or mist. Wear self-contained breathing apparatus and full protective clothing. Prevent contaminated firefighting water from entering drains or the environment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Ventilate the affected area. Keep unnecessary personnel away. Avoid skin and eye contact and avoid breathing spray, mist or dust.

6.1.2. For emergency responders

Do not intervene without suitable protective equipment. Use the personal protective equipment described in Section 8.

6.2. Environmental precautions

Avoid release to the environment. Prevent entry into drains, surface water and soil. Notify the competent authorities if a significant release reaches a sewer or watercourse.

6.3. Methods and material for containment and cleaning up

Stop the leak if this can be done safely. Absorb with inert material such as sand, clay or diatomaceous earth and collect in suitable closed containers. Do not return recovered material to the original container. Wet residues are very slippery.

6.4. Reference to other sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Use only with adequate ventilation. Avoid contact with skin and eyes. Do not breathe spray or mist; avoid dust generation when removing dried coating. Wash hands and exposed skin after use. Do not eat, drink or smoke in work areas.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store only in the original, tightly closed container in a well-ventilated place at 0-30 °C. Protect from freezing, direct sunlight and temperatures above 30 °C.

Incompatible substances : Strong acids, strong bases, strong oxidising agents and strong reducing agents.

Conditions to avoid : Temperatures below 0 °C or above 30 °C; direct sunlight; freezing.

7.3. Specific end use(s)

Professional coating for heating pipes in horticultural greenhouses. Follow the product application instructions.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No occupational exposure limit has been established for the mixture. Observe applicable national exposure limits for titanium dioxide, talc, zinc compounds, sodium nitrite and other listed ingredients. Exposure is primarily possible as spray or mist during application and as mineral dust during mechanical removal of dried coating.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and, where necessary, local exhaust ventilation. Minimise aerosol and dust formation. Provide facilities for washing hands and rinsing eyes.

8.2.2. Personal protective equipment

Eye/face protection : Chemical safety goggles or safety glasses where splashing is possible.

Hand protection : Wear suitable chemical-resistant protective gloves. Select material and breakthrough time according to the task and glove supplier recommendations.

Skin/body protection : Wear suitable protective work clothing. Remove contaminated clothing and wash before reuse.

Respiratory protection	:	Use a nationally approved particulate respirator where spray, mist or dust cannot be adequately controlled by ventilation.
Hygiene measures	:	Do not eat, drink or smoke during use. Wash hands and exposed skin after handling.

8.2.3. Environmental exposure controls
Prevent uncontrolled release to drains, surface water and soil.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	White
Odour	:	Characteristic
Odour threshold	:	No data available
pH	:	Approximately 9
Freezing point	:	0 °C
Boiling point / range	:	>60 °C
Flammability	:	Not flammable
Flash point	:	Not determined; product is water-based and not classified as flammable
Vapour pressure	:	Approximately 23 hPa
Density	:	Approximately 1.3 g/cm³
Solubility in water	:	Miscible
Kinematic viscosity	:	Approximately 7,692.308 mm²/s
Dynamic viscosity	:	Approximately 10,000 mPa·s at 20 °C (Brookfield RV, spindle 5, 10 rpm)
Particle characteristics	:	Not applicable to the product as supplied; dried coating contains mineral particles

9.2. Other information

No additional safety-relevant information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reaction is expected under normal conditions of use.

10.2. Chemical stability

Stable when stored and handled as recommended.

10.3. Possibility of hazardous reactions

Contact with strong acids may release irritating nitrogen oxides from nitrite-containing components. No hazardous polymerisation is expected.

10.4. Conditions to avoid

Temperatures below 0 °C or above 30 °C, direct sunlight and freezing. Avoid unnecessary generation of spray, mist or airborne dust.

10.5. Incompatible materials

Strong acids, strong bases, strong oxidising agents and strong reducing agents.

10.6. Hazardous decomposition products

Carbon monoxide, carbon dioxide, nitrogen oxides, ammonia, zinc/phosphorus oxides and irritating fumes may be produced during fire or thermal decomposition.

SECTION 11: Toxicological information

11.1. Information on hazard classes

Hazard class	Assessment for PipePaint
Acute toxicity - oral	Not classified.
Acute toxicity - dermal	Not classified.
Acute toxicity - inhalation	Not classified for acute toxicity.
Skin corrosion/irritation	Not classified.
Serious eye damage/eye irritation	Not classified; direct contact may cause temporary irritation.
Respiratory or skin sensitisation	Skin Sensitisation Category 1 (H317) due to isothiazolinone preservatives.
Germ cell mutagenicity	Not classified.
Carcinogenicity	Not classified. The titanium-dioxide pigment grade used is not classified by its manufacturer for carcinogenicity; its aerodynamic fraction ≤10 µm is <1% (EN 15051-2).
Reproductive toxicity	Not classified; trimethylolpropane originating from the pigment is below the applicable mixture classification threshold.
STOT - single exposure	Not classified.
STOT - repeated exposure	Not classified. The titanium-dioxide pigment grade used is not classified by its manufacturer for repeated-exposure target-organ toxicity. Minimise inhalation of spray, mist and dust as good occupational hygiene.
Aspiration hazard	Not classified; high product viscosity and low concentration of petroleum-derived components.

11.2. Information on other hazards

No carcinogenicity or repeated-exposure target-organ toxicity classification is assigned based on manufacturer-specific data for the titanium-dioxide pigment grade used. Manufacturer particle analysis reports an aerodynamic fraction ≤10 µm of <1% according to EN 15051-2. Spray, mist and dust exposure should nevertheless be minimised as a workplace-control measure. No additional information is available on endocrine-disrupting properties.

SECTION 12: Ecological information

12.1. Toxicity

Classified as hazardous to the aquatic environment - long-term Category 2 (H411) by the summation method. Trizinc bis(orthophosphate) is the principal driver. The Korean classification system used here does not assign a separate acute Category 2 classification.

12.2. Persistence and degradability

No product-specific data available. The inorganic pigment components are not biodegradable.

12.3. Bioaccumulative potential

No product-specific data available.

12.4. Mobility in soil

No product-specific data available. Zinc-containing particles may bind to soil and sediment.

12.5. Results of PBT and vPvB assessment

No product-specific PBT/vPvB assessment is available. No supplied source document identifies an intentionally added component as PBT or vPvB at a relevant concentration.

12.6. Endocrine-disrupting properties

No additional information available.

12.7. Other adverse effects

Toxic to aquatic life with long lasting effects. Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Dispose of contents and container through an authorised waste contractor in accordance with applicable local and national regulations. Do not discharge residues to drains, surface water or soil. Empty containers may retain hazardous residue and should be handled accordingly.

SECTION 14: Transport information

PipePaint is regulated for transport as an environmentally hazardous liquid because the mixture meets the long-term aquatic hazard criteria. Classification is based on the applicable domestic dangerous-goods framework and on IMDG/IATA requirements.

Item	Korea domestic transport	IMDG	IATA
14.1 UN number or ID number	UN 3082	UN 3082	UN 3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains trizinc bis(orthophosphate))	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains trizinc bis(orthophosphate))	Environmentally hazardous substance, liquid, n.o.s. (contains trizinc bis(orthophosphate))
14.3 Transport hazard class(es)	9	9	9
14.4 Packing group	III	III	III
14.5 Environmental hazards	Yes	Marine pollutant	Yes
14.6 Special precautions for user	Keep containers tightly closed and upright. Prevent release. Protect from freezing and temperatures above 30 °C.	Keep containers tightly closed and upright. Prevent release.	Keep containers tightly closed and upright. Prevent release.
14.7 Maritime transport in bulk	Not applicable	Not intended for bulk transport under IMO instruments	Not applicable

SECTION 15: Regulatory information

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

- Occupational Safety and Health Act and MoEL Notice No. 2026-26 on classification, labelling and MSDS preparation.
- Act on Registration and Evaluation of Chemical Substances (K-REACH) and Chemicals Control Act, where applicable.
- Applicable Korean requirements for domestic, sea and air transport of dangerous goods.
- Current mixture assessment: Skin Sens. 1; Aquatic Chronic 2.

15.2. Chemical safety assessment

No product-specific chemical safety assessment has been carried out.

SECTION 16: Other information

Classification method

Classification was assessed by calculation using the exact confidential formulation, the supplied raw-material SDSs and the applicable country-specific GHS mixture rules. Zinc phosphate drives the aquatic classification; isothiazolinone preservatives drive skin sensitisation. The titanium-dioxide pigment grade used is not classified by its manufacturer for carcinogenicity or repeated-exposure target-organ toxicity, and manufacturer particle analysis reports an aerodynamic fraction ≤10 µm of <1% according to EN 15051-2. Accordingly, PipePaint is not classified for carcinogenicity or repeated-exposure target-organ toxicity. The exact formula and calculations are not reproduced in this public SDS.

Full text of hazard statements referred to in this SDS

Code	Hazard statement
H272	May intensify fire; oxidiser.
H301	Toxic if swallowed.
H304	May be fatal if swallowed and enters airways.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H361d	Suspected of damaging the unborn child.
H361f	Suspected of damaging fertility.
H400	Very toxic to aquatic life.
H401	Toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Hazard-class and other abbreviations

Abbreviation	Meaning
Acute Tox.	Acute toxicity
Aquatic Acute / Aquatic Chronic	Hazardous to the aquatic environment - acute / long-term hazard
BIT	1,2-Benzisothiazol-3(2H)-one
Carc.	Carcinogenicity
CAS	Chemical Abstracts Service registry number
CMIT/MIT	Chloromethylisothiazolinone / methylisothiazolinone reaction mass (3:1)
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
IATA / IMDG / IMO	International Air Transport Association / International Maritime Dangerous Goods Code / International Maritime Organization

M-factor	Multiplying factor for highly toxic aquatic substances
MIT	2-Methylisothiazol-3(2H)-one
MSDS / SDS	Material safety data sheet / safety data sheet
PBT / vPvB	Persistent, bioaccumulative and toxic / very persistent and very bioaccumulative
Skin Sens.	Skin sensitisation
STOT RE	Specific target organ toxicity - repeated exposure
UN	United Nations

Training advice

Workers should be trained in safe handling, spray and dust exposure control, use of personal protective equipment, spill response and environmental protection before using the product.

Disclaimer

This information describes the product for health, safety and environmental purposes and is not a guarantee of product properties. It applies only to the product as supplied and may not apply when used with other materials or in another process.