

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830 - Europe

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

1.1 Product identifier

Product name : Hempel's Bravo II 76160
Product identity : 7616030390
Product type : antifouling paint

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

Field of application : yacht, ships and shipyards.
Identified uses : Consumer applications, Professional applications, Used by spraying.
Spraying - For professional users only.

1.3 Details of the supplier of the safety data sheet

Company details : HEMPEL A/S
Lundtoftegårdsvej 91
DK-2800 Kgs. Lyngby
Denmark
Tel.: + 45 45 93 38 00
hempel@hempel.com
Date of issue : 1 July 2020
Date of previous issue : 8 October 2019.

1.4 Emergency telephone number

Emergency telephone number (with hours of operation)

+45 45 93 38 00 (08.00 - 17.00)
See section 4 First aid measures.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 3, H226	FLAMMABLE LIQUIDS
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION
Eye Dam. 1, H318	SERIOUS EYE DAMAGE/ EYE IRRITATION
Aquatic Acute 1, H400	AQUATIC HAZARD (ACUTE)
Aquatic Chronic 1, H410	AQUATIC HAZARD (LONG-TERM)

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Danger
Hazard statements : H226 - Flammable liquid and vapor.
H315 - Causes skin irritation.
H318 - Causes serious eye damage.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements :

General : If medical advice is needed, have product container or label at hand. Keep out of reach of children.
Prevention : Avoid breathing vapors, spray or mists. Wear protective gloves/protective clothing/eye protection/face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
Storage : Keep cool.
Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazardous ingredients : copper (I) oxide

Supplemental label elements :

Special packaging requirements

SECTION 2: Hazards identification

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
copper (I) oxide	REACH #: 01-2119513794-36 EC: 215-270-7 CAS: 1317-39-1 Index: 029-002-00-X	≥25 - ≤50	Acute Tox. 4, H302 Acute Tox. 4, H332 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=100)	- [1]
xylene	REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9	≥10 - ≤25	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315	C [1] [2]
zinc oxide	REACH #: 01-2119463881-32 EC: 215-222-5 CAS: 1314-13-2 Index: 030-013-00-7	≥10 - ≤25	Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	- [1]
solvent naphtha (petroleum), light arom.	REACH #: 01-2119455851-35 EC: 265-199-0 CAS: 64742-95-6	≥5 - ≤10	Flam. Liq. 3, H226 STOT SE 3, H335 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	P [1] [2]
ethylbenzene	REACH #: 01-2119489370-35 EC: 202-849-4 CAS: 100-41-4 Index: 601-023-00-4	≥3 - ≤5	Flam. Liq. 2, H225 Acute Tox. 4, H332 STOT RE 2, H373 (hearing organs) Asp. Tox. 1, H304	- [1] [2]
cupric oxide	EC: 215-269-1 CAS: 1317-38-0 Index: 029-016-00-6	≤1	Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=1)	- [1]
copper (metallic)	EC: 231-159-6 CAS: 7440-50-8 Index: 029-019-01-X	<1	Acute Tox. 4, H302 Acute Tox. 3, H331 Eye Irrit. 2, H319 Aquatic Acute 1, H400 (M=10000) Aquatic Chronic 1, H410 (M=100)	- [1]
toluene	REACH #: 01-2119471310-51 EC: 203-625-9 CAS: 108-88-3 Index: 601-021-00-3	≤0.3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361d STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 See Section 16 for the full text of the H statements declared above.	- [1] [2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit, see section 8.
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

Active substances

Product/ingredient name (% by weight)
copper (I) oxide (26.3 % by weight)

SECTION 4: First aid measures

4.1 Description of first aid measures

General :	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 112 and give immediate treatment (first aid).
Eye contact :	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. In all cases of doubt, or when symptoms persist, seek medical attention.
Inhalation :	Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Give nothing by mouth. If unconscious, place in recovery position and get medical attention immediately.
Skin contact :	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
Ingestion :	If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.
Protection of first-aiders :	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact :	Causes serious eye damage.
Inhalation :	No known significant effects or critical hazards.
Skin contact :	Causes skin irritation.
Ingestion :	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact :	Adverse symptoms may include the following: pain watering redness
Inhalation :	No specific data.
Skin contact :	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion :	Adverse symptoms may include the following: stomach pains

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician :	If gasses have been inhaled, from the decomposition of the product, symptoms may be delayed. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments :	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media :	Recommended: alcohol resistant foam, CO ₂ , powders, water spray. Not to be used: waterjet.
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5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture :	Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products :	Decomposition products may include the following materials: carbon oxides nitrogen oxides metal oxide/oxides

SECTION 5: Firefighting measures

5.3 Advice for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid all direct contact with the spilled material. Exclude sources of ignition and be aware of explosion hazard. Ventilate the area. Avoid breathing vapor or mist. Refer to protective measures listed in sections 7 and 8. No action shall be taken involving any personal risk or without suitable training. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and materials for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air. Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits. In addition, the product should be used only in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. To dissipate static electricity during transfer, ground drum and connect to receiving container with bonding strap. No sparking tools should be used.

Avoid inhalation of vapour, dust and spray mist. Avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Appropriate personal protective equipment: see Section 8. Always keep in containers made from the same material as the original one.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Keep out of the reach of children. Keep away from: Oxidizing agents, strong alkalis, strong acids. No smoking. Prevent unauthorized access. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

See separate Product Data Sheet for recommendations or industrial sector specific solutions.

Specific end use(s) : Antifouling products.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Product/ingredient name	Exposure limit values
xylene solvent naphtha (petroleum), light arom. ethylbenzene toluene	<p>EU OEL (Europe, 10/2019). Absorbed through skin. TWA: 50 ppm 8 hours. TWA: 221 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 442 mg/m³ 15 minutes.</p> <p>EU OEL (Europe). TWA: 120 mg/m³ 8 hours. Form: Tentativ TWA: 25 ppm 8 hours. Form: Tentativ</p> <p>EU OEL (Europe, 10/2019). Absorbed through skin. STEL: 884 mg/m³ 15 minutes. STEL: 200 ppm 15 minutes. TWA: 442 mg/m³ 8 hours. TWA: 100 ppm 8 hours.</p> <p>EU OEL (Europe, 10/2019). Absorbed through skin. TWA: 192 mg/m³ 8 hours. TWA: 50 ppm 8 hours. STEL: 384 mg/m³ 15 minutes. STEL: 100 ppm 15 minutes.</p>

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived effect levels

Not applicable.

Predicted effect concentrations

Not applicable.

8.2 Exposure controls

Appropriate engineering controls

Arrange sufficient ventilation by local exhaust ventilation and good general ventilation to keep the airborne concentrations of vapors or dust lowest possible and below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the workstation location.

Individual protection measures

General :

Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. Safety eyewear should be used when there is a likelihood of exposure.



Hygiene measures :

Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

Eye/face protection :

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Hand protection :

Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. The quality of the chemical-resistant protective gloves must be chosen as a function of the specific workplace concentrations and quantity of hazardous substances.

SECTION 8: Exposure controls/personal protection

Since the actual work situation is unknown. Supplier of gloves should be contacted in order to find the appropriate type. Below listed glove(s) should be regarded as generic advice:

Recommended: Silver Shield / Barrier / 4H gloves, polyvinyl alcohol (PVA), Viton®

May be used: nitrile rubber

Short term exposure: neoprene rubber, butyl rubber, natural rubber (latex), polyvinyl chloride (PVC)

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved handling this product.

Wear suitable protective clothing. Always wear protective clothing when spraying.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If working areas have insufficient ventilation: When the product is applied by means that will not generate an aerosol such as, brush or roller wear half or totally covering mask equipped with gas filter of type A, when grinding use particle filter of type P. Be sure to use an approved/certified respirator or equivalent.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state :	Liquid.
Color :	Blue.
Odor :	Solvent-like
pH :	Testing not relevant or not possible due to nature of the product.
Melting point/freezing point :	Testing not relevant or not possible due to nature of the product.
Boiling point/boiling range :	Testing not relevant or not possible due to nature of the product.
Flash point :	Closed cup: 26°C (78.8°F)
Evaporation rate :	Testing not relevant or not possible due to nature of the product.
Flammability :	Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat. Flammable in the presence of the following materials or conditions: oxidizing materials. Slightly flammable in the presence of the following materials or conditions: reducing materials.
Lower and upper explosive (flammable) limits :	0.8 - 7.6 vol %
Vapor pressure :	Testing not relevant or not possible due to nature of the product.
Vapor density :	Testing not relevant or not possible due to nature of the product.
Specific gravity :	1.649 g/cm ³
Solubility(ies) :	Very slightly soluble in the following materials: cold water and hot water.
Partition coefficient (LogKow) :	Testing not relevant or not possible due to nature of the product.
Auto-ignition temperature :	Lowest known value: 280 - 470°C (536 - 878°F) (Solvent naphtha (petroleum), light arom.).
Decomposition temperature :	Testing not relevant or not possible due to nature of the product.
Viscosity :	Aspiration hazard (H304) Not classified. Testing not relevant due to nature of the product.
Explosive properties :	Testing not relevant or not possible due to nature of the product.
Oxidizing properties :	Testing not relevant or not possible due to nature of the product.

9.2 Other information

Solvent(s) % by weight :	Weighted average: 26 %
Water % by weight :	Weighted average: 0 %
VOC content :	437.6 g/l
TOC Content :	Weighted average: 383 g/l
Solvent Gas :	Weighted average: 0.097 m ³ /l

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials

Highly reactive or incompatible with the following materials: oxidizing materials.

Reactive or incompatible with the following materials: reducing materials, organic materials, acids, alkalis and moisture.

10.6 Hazardous decomposition products

When exposed to high temperatures (i.e. in case of fire) harmful decomposition products may be formed:

Decomposition products may include the following materials: carbon oxides nitrogen oxides metal oxide/oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Exposure to component solvent vapor concentrations may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Solvents may cause some of the above effects by absorption through the skin. Symptoms and signs include headaches, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage. Accidental swallowing may cause stomach pain. Chemical lung inflammation may occur if the product is taken into the lungs via vomiting.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Copper (I) oxide	LC50 Inhalation Dusts and mists	Rat	3.34 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	1340 mg/kg	-
xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	6350 ppm	4 hours
	LD50 Dermal	Rabbit	>4200 mg/kg	-
zinc oxide	LD50 Oral	Rat	3523 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>5.7 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
solvent naphtha (petroleum), light arom.	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Vapor	Rat	6193 mg/m ³	4 hours
	LD50 Dermal	Rabbit	3160 mg/kg	-
ethylbenzene	LD50 Oral	Rat	8400 mg/kg	-
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
copper (metallic)	LC50 Inhalation Dusts and mists	Rat	1.5 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	TDL _o Oral	Human	0.01 mg/kg	-
toluene	LC50 Inhalation Vapor	Rat	>20 mg/l	4 hours
	LD50 Oral	Rat	636 mg/kg	-

Acute toxicity estimates

SECTION 11: Toxicological information

Product/ingredient name	Oral mg/kg	Dermal mg/kg	Inhalation (gases) ppm	Inhalation (vapors) mg/l	Inhalation (dusts and mists) mg/l
Hempel's Bravo II 76160	6835.6	8904.7	40475.9	400	14
copper (I) oxide	1340				3.34
xylene	3523	1100	5000		
solvent naphtha (petroleum), light arom.	8400	3160			
ethylbenzene	3500			11	
copper (metallic)	500				0.5

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure
copper (I) oxide	Eyes - Irritant	Rabbit	-	-
xylene	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams
zinc oxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams
solvent naphtha (petroleum), light arom.	Eyes - Mild irritant	Rabbit	-	24 hours 100 microliters
ethylbenzene	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams
	Respiratory - Mild irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	-
toluene	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams

Mutagenic effects

No known significant effects or critical hazards.

Carcinogenicity

No known significant effects or critical hazards.

Reproductive toxicity

No known significant effects or critical hazards.

Teratogenic effects

No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
solvent naphtha (petroleum), light arom.	Category 3		Respiratory tract irritation
	Category 3		Narcotic effects
1,2,4-trimethylbenzene	Category 3		Respiratory tract irritation
toluene	Category 3		Narcotic effects

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	-	hearing organs
toluene	Category 2	-	-

Aspiration hazard

Product/ingredient name	Result
ethylbenzene	ASPIRATION HAZARD - Category 1
Solvent naphtha (petroleum), light arom.	ASPIRATION HAZARD - Category 1
toluene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Other information : No additional known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Do not allow to enter drains or watercourses. Very toxic to aquatic life with long lasting effects.

Product/ingredient name	Result	Species	Exposure
copper (I) oxide	EC50 65 mg/l	Algae	72 hours
	Acute EC50 0.51 mg/l	Daphnia - Daphnia Magna	48 hours
zinc oxide	Acute LC50 0.0081 mg/l	Fish - Pimephales promelas	96 hours
	LC50 0.169 mg/l	Fish	96 hours
solvent naphtha (petroleum), light arom.	Acute EC50 0.17 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 1 mg/l	- Exponential growth phase	
	Acute EC50 24600 µg/l Fresh water	Daphnia - Pseudokirchneriella subcapitata - Exponential growth phase	48 hours
	Acute EC50 19 mg/l	Daphnia - Daphnia magna - Neonate	48 hours
ethylbenzene	Acute EC50 6.14 mg/l	Algae - Pseudokirchneriella subcapitata (green algae)	96 hours
	Acute LC50 9.22 mg/l	Daphnia - Daphnia magna	48 hours
copper (metallic)	Chronic NOEC <1000 µg/l Fresh water	Fish - Oncorhynchus mykiss (rainbow trout)	96 hours
	Acute EC50 1100 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
toluene	Acute EC50 2.1 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
	Acute IC50 13 µg/l Fresh water	Daphnia - Daphnia longispina - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute IC50 5.4 mg/l Marine water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute LC50 0.072 µg/l Marine water	Aquatic plants - Plantae - Exponential growth phase	72 hours
	Acute LC50 7.56 µg/l Marine water	Crustaceans - Amphipoda - Adult	48 hours
	Chronic NOEC 2.5 µg/l Marine water	Fish - Periophthalmus waltoni - Adult	96 hours
	Chronic NOEC 7 mg/l Fresh water	Algae - Nitzschia closterium - Exponential growth phase	72 hours
	Chronic NOEC 0.02 mg/l Fresh water	Aquatic plants - Ceratophyllum demersum	3 days
	Chronic NOEC 2 µg/l Fresh water	Crustaceans - Cambarus bartonii - Mature	21 days
	Chronic NOEC 0.8 µg/l Fresh water	Daphnia - Daphnia magna	21 days
toluene	Chronic NOEC <500000 µg/l Fresh water	Fish - Oreochromis niloticus - Juvenile (Fledgling, Hatchling, Weanling)	6 weeks
	Chronic NOEC 1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
		Daphnia - Daphnia magna	21 days

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
xylene	-	>60 % - Readily - 28 days	-	-
	solvent naphtha (petroleum), light arom.	>70 % - Readily - 28 days	-	-
	ethylbenzene	>70 % - Readily - 28 days	-	-
	toluene	100 % - Readily - 14 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
xylene	-	-	Readily
zinc oxide	-	-	Not readily
solvent naphtha (petroleum), light arom.	-	-	Readily
ethylbenzene	-	-	Readily
toluene	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
xylene	3.12	8.1 - 25.9	low
zinc oxide	2.2	60960	high
solvent naphtha (petroleum), light arom.	-	10 - 2500	high
ethylbenzene	3.6	-	low
toluene	2.73	90	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}): No known data available in our database.

SECTION 12: Ecological information

Mobility : No known data available in our database.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Residues of the product is listed as hazardous waste. Dispose of according to all state and local applicable regulations. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Spillage, remains, discarded clothes and similar should be discarded in a fireproof container.

European waste catalogue no. (EWC) is given below.






European waste catalogue (EWC) : 08 01 11*

Packaging

The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

Transport may take place according to national regulation or ADR for transport by road, RID for transport by train, IMDG for transport by sea, IATA for transport by air.

	14.1 UN no.	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 PG*	14.5 Env*	Additional information
ADR/RID Class	UN1263	PAINT	3  	III	Yes.	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. Tunnel code (D/E)
IMDG Class	UN1263	PAINT. (copper (I) oxide)	3  	III	Yes.	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. Emergency schedules F-E, S-E
IATA Class	UN1263	PAINT	3 	III	Yes.	The environmentally hazardous substance mark may appear if required by other transportation regulations.

PG* : Packing group

Env.* : Environmental hazards

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH) Annex XIV - List of substances subject to authorization - Substances of very high concern

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

Other EU regulations

Seveso category This product is controlled under the Seveso III Directive.

Seveso category
P5c: Flammable liquids 2 and 3 not falling under P5a or P5b E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1

Biocidal Products Regulations

Restrictions on use. : See Section 1: Relevant identified uses of the substance or mixture and uses advised against

Directions for use and dose rate : Spray or Roller application or brushing
Consumer use: Rolling, Brushing
Dose: See separate Product Data Sheet, Application instructions or label.

Additional information : (Product Type: 21 - Antifouling products) Liquid. Wear suitable protective clothing, gloves and eye/face protection. In case of contact with eyes, rinse immediately with plenty of water. If swallowed, seek medical advice immediately and show this container or label. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheet.

International regulations

IMO Anti-fouling System Convention Compliant (AFS/CONF/26)

This product does not contain organotin compounds acting as biocides and complies with the International Convention on the Control of Harmful Anti-fouling Systems on Ships as adopted by IMO October 2001 (IMO document AFS/CONF/26)

Product type : antifouling paint
Manufacturer : Hempel A/S
Product name and/or code : Hempel's Bravo II 76160
7616030390
Colour : Blue.

Note: This name is shown on the product container. All products in HEMPEL's containers carrying this name comply with the IMO Convention (AFS/CONF/26).

Active ingredient(s) : copper (I) oxide 1317-39-1

15.2 Chemical Safety Assessment

This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
EUH statement = CLP-specific Hazard statement
RRN = REACH Registration Number
DNEL = Derived No Effect Level
PNEC = Predicted No Effect Concentration

Full text of abbreviated H statements : H225 Highly flammable liquid and vapor.
H226 Flammable liquid and vapor.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

SECTION 16: Other information

	H336	May cause drowsiness or dizziness.
	H361d	Suspected of damaging the unborn child.
	H373	May cause damage to organs through prolonged or repeated exposure.
	H400	Very toxic to aquatic life.
	H410	Very toxic to aquatic life with long lasting effects.
	H411	Toxic to aquatic life with long lasting effects.
Full text of classifications [CLP/GHS] :	Acute Tox. 3	ACUTE TOXICITY - Category 3
	Acute Tox. 4	ACUTE TOXICITY - Category 4
	Aquatic Acute 1	AQUATIC HAZARD (ACUTE) - Category 1
	Aquatic Chronic 1	AQUATIC HAZARD (LONG-TERM) - Category 1
	Aquatic Chronic 2	AQUATIC HAZARD (LONG-TERM) - Category 2
	Asp. Tox. 1	ASPIRATION HAZARD - Category 1
	Eye Dam. 1	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
	Eye Irrit. 2	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
	Flam. Liq. 2	FLAMMABLE LIQUIDS - Category 2
	Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
	Repr. 2	TOXIC TO REPRODUCTION - Category 2
	Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
	STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
	STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 3

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
FLAMMABLE LIQUIDS SKIN CORROSION/IRRITATION SERIOUS EYE DAMAGE/ EYE IRRITATION AQUATIC HAZARD (ACUTE) AQUATIC HAZARD (LONG-TERM)	On basis of test data Calculation method Calculation method Calculation method Calculation method

Notice to reader

Indicates information that has changed from previously issued version.

The information contained in this safety data sheet is based on the present state of knowledge and EU and national legislation. It provides guidance on health, safety and environmental aspects for handling the product in a safe way and should not be construed as any guarantee of the technical performance or suitability for particular applications.

It is always the duty of the user/employer to ascertain that the work is planned and carried out in accordance with the national regulations.