

SECTION 1: IDENTIFICATION

1.1 Product Description

Product Name	Pugio
Active Ingredient	Copper sulfate-tricupric hydroxide 34.5% w/v
Benefit	Pesticide

1.2 Suggestions

- | | |
|---------------------|---|
| For using | 1. After using, should be washed hand always.
2. Wear protective equipment always before use. |
| Prohibition for use | 1. <u>DO NOT</u> eat and contact to skin, eyes, or inhaled.
2. While using, keep unrelated people and pets away from that area. And <u>DO NOT</u> enter until Pugio is completely dry.
3. Containers. When used up, do not reuse, destroy.
4. <u>DO NOT</u> use the container that is mixed with Pugio for other purposes.
5. <u>DO NOT</u> dispose product and containers to watercourses. |

1.3 Detail of the supplier of the product

Distributor	Sherwood Corporation (Thailand) Public Company Limited
Address	1065 Srinakarin Road, Suanluang, Suanluang, Bangkok 10250, Thailand
Contact	Tel. +66-2320-2288 Fax. +66-2320-2670
Website	http://www.sherwood.co.th
Import and Manufacturer	T.J.C. Chemical Co., Ltd.
Address	No. 518/5 Maneeya Center Building, 7th Floor, Ploenchit Road Lumpini, Pathumwan, Bangkok 10330
Contact	Phone 0-2254-8301-7 Fax 0-2254-8308
	Nufarm GmbH & Co KG
Address	A-4021 Linz AUSTRIA
Contact	+43/732/6914-2466(Linz/Austria production site)
Emergency Contact	Tel. (+66) 9-5957-4010 All 24 hours

SECTION 2: HAZARDS IDENTIFICATION

Very toxic to aquatic organisms.
May cause long-term adverse effects in the aquatic environment.

SECTION 3: INFORMATION ON INGREDIENTS

Chemical nature: Mixture of active ingredient and additives

Components	CAS-No.	EINECS-No. ELINCS-No.	Symbol(s):	R-pharse(s)	Concentration (w/w)
tribasic copper sulfate	12527-76-3		Xn	R22	27,2 %
Ethandiol	107-21-1	203-473-3	Xn	R22	6,3 %

4. (First Aid Measures)

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, consult a specialist.

Skin contact : Wash off with soap and plenty of water.

Inhalation : Move to fresh air.

Ingestion : If ingested, gastric lavage. Rinse mouth. Obtain medical attention. Do not induce vomiting.

Notes to physician

Symptoms : stomach pains, vomiting, symptoms attributed to the CNS and kidneys, hemolytic crisis accompanied by damage in the liver and brain

Treatment : No specific antidote, symptomatic treatment. Decontamination: 1 spoon of a 1 % solution of K-Hexacyanoferrat.

SECTION 5: FIRE FIGHTING MEASURES

Specific hazards during fire fighting : none

Special protective equipment for fire-fighters : Use personal protective equipment. Wear self contained breathing apparatus for fire fighting if necessary.

Suitable extinguishing media : water spray, dry powder, sand, foam, carbon dioxide (CO₂)

Extinguishing media which must not be used for safety reasons : high volume water jet

Further information : Standard procedure for chemical fires. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- Personal precautions : Use personal protective equipment. (see Chapter 8)
- Environmental precautions : Do not flush into surface water or sanitary sewer system.
- Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder). Use mechanical handling equipment.
- Additional advice : Never return spills in original containers for re-use.

SECTION 7: HANDLING AND STORAGE

Handling

- Safe handling advice : Keep out of reach of children. Wear personal protective equipment.

Storage

- Requirements for storage areas and containers : Store at room temperature in the original container.
- Advice on common storage : Keep away from food, drink and animal feeding stuffs.
- German storage class : 12/10 (Non Combustible Liquids, Packaging possibly combustible)

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with workplace control parameters (according Austrian occupational exposure limits)

Components	CAS-No.	occupational exposure limits	Note
tribasic copper sulfate	12527-76-3	1 mg/m ³	inhalable fraction
Ethandiol	107-21-1	26 mg/m ³	

Personal protective equipment

- Respiratory protection : No special protective equipment required. Hand protection : protective gloves
- Eye protection : safety glasses
- Skin and body protection : long sleeved clothing
- Hygiene measures : Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and at the end of workday. When using, do not eat, drink or smoke.
- Protective measures : Keep working clothes separately.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state : liquid
Form : suspension
Colour : greenish-blue
Odour : characteristic

Other data

Start of crystallization : ca.-3 °C
Boiling point/range : ca.100 °C
at 1.013 hPa

Flash point : does not flash

Ignition temperature : no data available

Upper explosion limit : no data available Lower

explosion limit : no data available

Vapour pressure : Active ingredient is an inorganic salt. Vapour pressure is negligibly low.

Density : ca.1,28 g/cm³

Water solubility : practically insoluble, dispersible

pH : ca.7 at 12,8 g/l

Partition coefficient : no data available
(n- octanol/water)

Viscosity, dynamic : no data available

SECTION 10: STABILITY AND REACTIVITY

Conditions to avoid : no data available

Materials to avoid : strong acids, Aluminium and its alloys, Iron

Hazardous reactions : No hazards deemed to be of major importance

Hazardous decomposition : No decomposition if stored normally.
products

11. ข้อมูลด้านพิษวิทยา (Toxicological Information)

Acute oral toxicity : LD50 rat Dose: ca. 2.500 mg/kg
Acute dermal toxicity : LD50 rat Dose: > 2.000 mg/kg
Acute inhalation toxicity : LC50 rat Exposure time: 4 h Dose: > 2.556 mg/l



SHERWOOD CORPORATION

Ecotoxicology effects

Public Company Limited (PCL) Coturnix coturnix japonica (Japanese quail)

Dose: 1.428 mg/kg

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Toxicity to bees	: Not toxic to bees.
Toxicity to fish	: NOEC Rainbow trout Dose: ca. 65 mg/l Testing period: 21 d LC50 Rainbow trout Dose: > 100 mg/l Testing period: 96 h
Toxicity to daphnia	: static test EC50 Daphnia magna (Water flea) Dose: 0,72 mg/l Testing period: 48 h
Skin irritation	: rabbit Result: No skin irritation
Eye irritation	: rabbit Result: No eye irritation
Sensitization	: Guinea-pig Result: Did not cause sensitization

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to algae : EC50 Scenedesmus subspicatus
Dose: > 100 mg/l
Exposure time: 72 h

Toxicity to bacteria : IC50
Dose: > 100 mg/l

Further information

: According to our experience, doesn't cause any disturbance in waste water clarifying plant if used appropriately.

Environmental damage is not known or expected under normal use.

SECTION 13: DISPOSAL CONSIDERATIONS

Product : In accordance with local and national regulations.

Do not dispose with household waste.

Dispose at an approved waste disposal facility. Dispose the product and its packages as dangerous waste.

Contaminated packaging : Do not re-use empty containers.

Dispose empty and triple rinsed container within a local disposing system according to EC directive 94/62/EC

According to Austrian standard ÖNORM S2100 :

Waste Key Number : 53103

According to European Directive 2000/532/EC as amended :

Waste Key Number : 02 01 08 (agrochemical waste containing dangerous substances)

SECTION 14: TRANSPORT INFORMATION

UN-No : **3082**

Description of the goods : UN3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
LIQUID, N.O.S.*(copper(II)-ions)

ADR/RID

Class : 9

Packaging group : III

IMDG

Class : 9

Packaging group : III

Marine pollutant : MP

IATA-DGR

Class : 9

Packaging group : III

SECTION 15: REGULATORY INFORMATION

FDA Registration No. : 82/2563

Symbol(s): : N Dangerous for the environment

R-phrases(s) : R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases(s) : S 2 Keep out of reach of children.
S13 Keep away from food, drink and animal feeding stuffs.
S20/21 When using, do not eat, drink or smoke.
S35 This material and its container must be disposed of in a safe way.
S57 Use appropriate containment to avoid environmental contamination.
S60 This product and/or its container must be disposed of as hazardous waste.

Further information : Handle in accordance with good industrial hygiene and safety practice.

Other regulations : The product is classified and labelled in accordance with National and European directives.

16. ข้อมูลอื่น ๆ (Other Information)

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(Alterations are indicated in the left hand margin by: ||)

Full text of any R phrases referred to under heading 2:

R22 - Harmful if swallowed.

R22 - Harmful if swallowed.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Registration Number: 2097

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**SHERWOOD CORPORATION (THAILAND)
PUBLIC COMPANY LIMITED**

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Disclaimer

This article is as accurately as possible complied with the best of our company's knowledge at the time documentation. Each user should read this SDS and consider the information in the context of how the material will be handle and used in the workplace including in conjunction with other products. If classification or further information is needed to ensure an appropriate risk assessment, the user should contact our technical team.

The above information is believed to be correct but does not purpose to be all inclusive and shall be used only as a guide. No warranty is expressed or implied regarding the accuracy and completeness of the data. As such, we cannot be held liable for any injury or economic loss. Users are further reminded of the possible risks of using this material for any other purpose than those for which it was intended. The above information can be utilized only for meeting regulatory norms in regard to handling and labeling advice.

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