

CANON OPTRON INC.

SDS Number: EH10

Product Name: PHILICFINE HP-3

## SAFETY DATA SHEET

rev. 7.2 Date of Issue 2017/4/7  
Revised Date 2022/10/3

## SECTION 1 Chemicals and company identification

Product name	PHILICFINE HP-3
Product code	EH10
Company name	CANON OPTRON INC.
Address	1744-1, Kanakubo, Yuki-shi, Ibaraki-ken, 307-0015 Japan
Section name	Sales Department
Telephone number	+81-296-21-3700
Fax number	+81-296-21-3770
Emergency telephone number	+81-296-21-3700
Use	Vacuum deposition material

## SECTION 2 Hazards identification

GHS Classification (A classification by JIS Z 7252 "classification methods such as chemical substances based on GHS")

Physical hazards	Explosives	Classification not possible
	Flammable gases	Not applicable
	Aerosols	Not applicable
	Oxidizing gases	Not applicable
	Gas under pressure	Not applicable
	Flammable liquids	Not applicable
	Flammable solids	Classification not possible
	Self-reactive substances and mixtures	Classification not possible
	Pyrophoric liquids	Not applicable
	Pyrophoric solids	Classification not possible
	Self-heating substances and mixtures	Classification not possible
	Substances and mixtures which, in contact with water, emit flammable gases	Classification not possible
	Oxidizing liquids	Not applicable
	Oxidizing solids	Classification not possible
	Organic peroxides	Classification not possible
	Corrosive to metals	Classification not possible
Health hazards	Desensitize explosives	Classification not possible
	Acute toxicity(oral)	Classification not possible
	Acute toxicity(dermal)	Classification not possible
	Acute toxicity (Inhalation: Gases)	Not applicable
	Acute toxicity (Inhalation: Vapors)	Classification not possible


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	Acute toxicity (Inhalation: Dusts and mists)	Classification not possible
	Skin corrosion/irritation	Classification not possible
	Serious eye damage/eye irritation	Classification not possible
	Respiratory sensitization	Classification not possible
	Skin sensitization	Classification not possible
	Germ cell mutagenicity	Classification not possible
	Carcinogenicity	Classification not possible
	Reproductive toxicity	Classification not possible
	Reproductive toxicity, effects on or via lactation	Classification not possible
	Specific target organ toxicity(single exposure)	Category 2
	Specific target organ toxicity(repeated exposure)	Category 1
	Aspiration hazard	Classification not possible
Environmental hazards	Hazardous to the aquatic environment Short-term(acute)	Classification not possible
	Hazardous to the aquatic environment Long-term(chronic)	Classification not possible
	Hazardous to the ozone layer	Classification not possible
Label elements		
hazard Pictograms	Health Hazard	
		
Signal word	Danger	
Dangerous goods hazard information	May cause damage to organs Lungs. Causes damage to organs through prolonged or repeated exposure Lungs.	
Precautionary statements		
【Safety measures】	Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.	

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【First-aid measures】	If exposed or concerned: Call poison center or doctor/physician. Get medical advice/attention if you feel unwell. Specific treatment.
【Storage】	Store locked up.
【Disposal】	Dispose of contents/container in accordance with national regulations.
【Other hazards】	-

## SECTION 3 Composition/information on ingredients

Substance/Mixture	Mixture	
Chemical name	<i>Hydroxylapatite</i>	<i>Cerium oxide</i>
Chemical formula	<i>Ca<sub>5</sub>(PO<sub>4</sub>)<sub>3</sub>(OH)</i>	<i>CeO<sub>2</sub></i>
Concentration or concentration range	Ca <sub>5</sub> (PO <sub>4</sub> ) <sub>3</sub> (OH) : 75-85 CeO <sub>2</sub> : 15-25	
CAS No.	1306-06-5	1306-38-3
TSCA Inventory	<i>Hydroxylapatite (Ca<sub>5</sub>(OH)(PO<sub>4</sub>)<sub>3</sub>)</i>	<i>Cerium oxide (CeO<sub>2</sub>)</i>
EINECS number	<i>215-145-7</i>	<i>215-150-4</i>
Radioactive information	Radioactive substances are not used as the material. Therefore, there is no reason that ionizing radiation would be generated.	

## SECTION 4 First aid measures

Inhalation	Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Rinse affected areas with water/shower. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: : Get medical advice/attention.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Rinse mouth. Get medical advice/attention.
Most important symptoms and effects, both acute and delayed	No data available
Protection of first aiders	Rescuers, wear suitable protective equipment as the situation demands.
Special precautions for physicians	No data available

## SECTION 5 Firefighting measures

Suitable extinguishing media	This product itself is not flammable.
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Unsuitable extinguishing media	No data available
Specific hazards	No data available
Specific extinguishing methods	In the case of a fire in the periphery, the portable container is quickly moved to a safe place.
Special protective equipment for firefighters	Wear suitable protective equipment (gloves, glasses and a mask) in fire-fighting.

## SECTION 6 Accidental release measures

Personal precautions, protective equipment, and emergency procedures	Protection equipment (specified as those in which the properties of the product are suitable) worn during operation so that airborne droplets, etc., do not adhere to the skin and dusts and gases are not absorbed.
Environmental precautions	The leakage may not directly flow into rivers or sewage.
Methods and material for containment and cleaning up	The leaked material is scooped up, or swept up and gathered to be recovered in a paper bag or a drum. After recovery, a small amount of the residue is absorbed in sediment, sawdust, etc.
Secondary disaster prevention measures	No data available

## SECTION 7 Handling and storage

## Precautions for safe handling

Technical measures	Take measures for equipment as described in "8. Exposure controls/personal protection" and wear protective equipment.
Safety handling precautions	Handling work must be practiced in a room where there is a local or total ventilation facility.
Avoidance of contact	Refer to "10. Stability and reactivity."
Hygiene measures	Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.
Conditions for safe storage, including any incompatibilities	
Safe storage conditions	Store locked up.
Safety packaging material	No data available

## SECTION 8 Exposure controls/personal protection

	<u><i>Ca<sub>5</sub>(PO<sub>4</sub>)<sub>3</sub>(OH)</i></u>	<u><i>GeO<sub>2</sub></i></u>
Permissible concentration		
ACGIH	No data available	No data available

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Appropriate engineering controls Use sealed devices, equipment, or a local exhaust ventilation as much as possible.

Individual protection measures, such as personal protective equipment

Respiratory protection	Dustproof mask
Hand protection	Protective gloves
Eye/face protection	Dust-proof glasses
Skin protection	Protective clothing

## SECTION 9 Physical and chemical properties

## Appearance

Physical state	Solid
Form	Granular
Colour	White
Odour	None

	<u><i>Ca<sub>5</sub>(PO<sub>4</sub>)<sub>3</sub>(OH)</i></u>	<u><i>GeO<sub>2</sub></i></u>
Melting point/freezing point	1614°C	2480°C
Boiling point or initial boiling point and boiling range	No data available	3730°C
Flammability	No data available	No data available
Upper/lower flammability or explosive limits	No data available	No data available
Flash point	No data available	No data available
Auto-ignition temperature	No data available	No data available
Decomposition temperature	No data available	No data available
pH	No data available	No data available
Kinematic viscosity	No data available	No data available
Solubility		
Water	Insoluble	Insoluble
Other solvents	Soluble in acid	And insoluble in solvents
Partition coefficient: n-octanol/water	No data available	No data available
Vapour pressure	No data available	No data available
Density and/or relative density (Density)	3.16 *1.09 as PHILICFINE HP-3 (bulk density in granular state)	7.21

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Relative vapor density	<i>No data available</i>	<i>No data available</i>
Particle characteristics	<i>No data available</i>	<i>No data available</i>
Other information	<i>No data available</i>	<i>No data available</i>

## SECTION 10 Stability and reactivity

**Ca<sub>5</sub>(PO<sub>4</sub>)<sub>3</sub>(OH)****CeO<sub>2</sub>**

Reactivity	<i>No data available</i>	<i>No data available</i>
Chemical stability	<i>Stable under normal handling and storage conditions.</i>	<i>It is considered stable.</i>
Possibility of hazardous reactions	<i>No data available</i>	<i>Do not react in the storage conditions and normal handling. It will generate NO<sub>x</sub> gas in the reaction of chlorine gas, and nitric acid reaction with hydrochloric acid.</i>
Conditions to avoid	<i>No data available</i>	<i>High-temperature and humidity</i>
Incompatible materials	<i>No data available</i>	<i>Carbon dioxide, acid</i>
Hazardous decomposition products	<i>Hydrogen phosphide, phosphorus oxide</i>	<i>Acid mist is generated upon dissolution of the acid.</i>

## SECTION 11 Toxicological information

**Ca<sub>5</sub>(PO<sub>4</sub>)<sub>3</sub>(OH)****CeO<sub>2</sub>**

Acute toxicity(oral)	<i>No data available</i>	<i>Rat LD50 value:&gt; 5000 mg / kg bw (IUCILID (2000))</i>
Acute toxicity(dermal)	<i>No data available</i>	<i>Based on the result that administration of 2000 mg/kg bw to rats caused no mortality, and LD50 value was &gt; 2000 mg/kg bw (IUCILID (2000)), the substance was classified as "Not classified".</i>
Acute toxicity (Inhalation: Gases)	<i>No data available</i>	<i>Solid (GHS definition)</i>
Acute toxicity (Inhalation: Vapours)	<i>No data available</i>	<i>No data available</i>
Acute toxicity (Inhalation: Dusts and mists)	<i>No data available</i>	<i>Based on the rat LC50 value of 5.05 mg/L (OECD TG 403) (IUCILID (2000)), the substance was classified as "Not classified" in the JIS classification (corresponding to Category 5 in the UN-GHS classification). According to the description that the test particles which was less than 3 micrometer in particle diameter were account for 85.4% (IUCILID (2000)), the criterion values for dust/mist were adopted.</i>

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Skin corrosion/irritation	<i>May irritate the skin.</i>	<i>In the rabbit test (OECD TG404), application of 0.5 g of test substance caused no irritation (IUCRID (2000)). In another rabbit test, the primary skin irritation index value was 0.0 and it was concluded that the substance was not irritating (IUCRID (2000)). Based on the information, the substance was classified as "Not classified".</i>
Serious eye damage/irritation	<i>May irritate the eye.</i>	<i>In the rabbit test (OECD TG405), instillation of 0.1 g of test substance to eye resulted in non-irritating (IUCRID (2000)). In another rabbit test, slightly irritating was reported (IUCRID (2000)). Based on the information, the substance was classified as "Not classified".</i>
Respiratory or skin sensitization	<i>May irritate the Respiratory.</i>	<i>In the maximization test using guinea pigs (OECD TG406), no reaction of sensitization was observed after elicitation, and concluded as a non-sensitizer (IUCRID (2000)). However, since it was the "List 2" information source designated in the GHS classification guidance for the Japanese government, the substance was classified as "Classification not possible".</i>
Germ cell mutagenicity	<i>No data available</i>	<i>The substance was classified as "Classification not possible" due to the negative results in the micronucleus test (OECD TG474) using bone marrow cells of mice orally administered (in vivo mutagenicity test in somatic cells) (IUCRID (2000)). As relevant information, as for in vitro study, negative results in the Ames test were reported (Initial Environmental Risk Assessment of Chemicals (Ministry of the Environment), vol. 8 (2010)).</i>
Carcinogenicity	<i>No data available</i>	<i>No data were available. As relevant information, the US EPA reports that the data of this substance are insufficient to evaluate the possibility of carcinogenicity in humans under the carcinogenicity risk assessment guidelines (IRIS (2009) Tox Review).</i>
Reproductive toxicity	<i>No data available</i>	<i>No data available</i>

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Specific target organ toxicity(single exposure)

*No data available*

*In the acute inhalation study in rats exposed to dust for 4 hours at the range of concentrations from 4.12 to 5.98 mg/L (OECD TG 433, GLP-compliant), labored respiration and ruffled fur were noted in two of ten animals, and the lungs of all animals were incompletely collapsed with diffuse whitish foci (IUCLID (2000)). Based on these findings observed in the concentration corresponding nearly to the upper limit within Category 2 of the guidance values, the substance was classified as Category 2 (lung). In addition, in the acute oral toxicity study in rats administered up to 5000 mg/kg bw, no mortality was recorded, body weight gain was normal, and no abnormalities were observed at necropsy (IUCLID (2000)).*



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Specific target organ toxicity(repeated exposure)	No data available	<p><i>In the lungs of the workers exposed for many years to the fumes of rare-earth elements such as cerium, accumulation of rare-earth elements was observed, and lung lesions such as granuloma, emphysema, or interstitial fibrosis and decrease of pulmonary breathing capacity were reported (Initial Environment Risk Assessment of Chemicals (Ministry of Environment), vol. 8 (2010)). Many reports were published describing long-term residue of rare earth elements in lung and numerous cases of workers who developed adverse lung effects associated with cerium oxide as follows. In the case of the 58-year-old worker who came to hospital complaining of dyspnea at least 15 years after exposures to cerium oxide polishing agents, slight pleural thickening, and pulmonary obstruction were noted. He was diagnosed by histopathological examination as chronic pachypleuritis (Initial Environment Risk Assessment of Chemicals (Ministry of Environment), vol. 8 (2010)). In the case of 68-year-old man who was engaged in the abrasive operation of the optical lens for 35 years, rare earth pneumoconiosis associated with cerium oxide exposure was identified after 13 years of separation of work (PATY, 5th (2001)). On the other hand, in the 13-week repeated inhalation study in rats exposed to dust, enlargement and discoloration of diaphragm in approximately half of the animals, changes of bronchial lymph nodes in all animals were found at 5 mg/m<sup>3</sup> or higher, and discoloration of the lungs in all animals at 51 mg/m<sup>3</sup> or higher at necropsy. Histopathologically, lymphoid hyperplasia and pigmentation in the bronchial lymph nodes, and pigmentation in the lung were noted at 5 mg/m<sup>3</sup> or higher in both sexes, and alveolar epithelial hyperplasia in the lungs and metaplasia and pigmentation in the larynx were noted at 51 mg/m<sup>3</sup> or higher in both sexes (Initial Environment Risk Assessment of Chemicals (Ministry of Environment), vol. 8 (2010)). These effects were observed at doses within Category 1 of the guidance values. Based on the findings for both humans and experimental animals, the substance was classified as Category 1 (lung).</i></p>
Aspiration hazard	No data available	No data available
Other information	No data available	

SECTION 12 Ecological information

Toxicity

Ga5(PO4)3(OH)

GeO2

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Hazardous to the aquatic environment Short-term(acute)	<i>No data available</i>	<i>No data available</i>
Hazardous to the aquatic environment Long-term(chronic)	<i>No data available</i>	<i>No data available</i>
Persistence and degradability	<i>No data available</i>	<i>No data available</i>
Bioaccumulative potential	<i>No data available</i>	<i>No data available</i>
Mobility in soil	<i>No data available</i>	<i>No data available</i>
Hazard to the ozone layer	<i>No data available</i>	<i>This substance is not listed in Annexes to the Montreal Protocol.</i>
Other adverse effects	<i>No data available</i>	<i>No data available</i>

## SECTION 13 Disposal considerations

Waste treatment methods	Process is contracted to industrial waste disposers who received approval of a prefectural governor.
Contaminated container and contaminated packaging	The container is recycled after being cleaned, or is appropriately processed according to the standards of related laws and regulations. When disposing of empty containers, the contents should be completely removed.

## SECTION 14 Transport information

	<u><i>Ca5(PO4)3(OH)</i></u>	<u><i>GeO2</i></u>
International regulation		
UN number	<i>Not applicable</i>	<i>Not applicable</i>
UN proper shipping name	<i>Not applicable</i>	<i>Not applicable</i>
UN classification	<i>Not applicable</i>	<i>Not applicable</i>
Transport hazard class	<i>Not applicable</i>	<i>Not applicable</i>
Packing group	<i>Not applicable</i>	<i>Not applicable</i>
Hazardous to the aquatic environment	<i>No data available</i>	<i>No data available</i>
Maritime transport in bulk according to IMO instruments	<i>No data available</i>	<i>No data available</i>
Japanese laws and regulations	<i>No data available</i>	<i>No data available</i>
Special precautions for users	<i>No data available</i>	<i>Requires retention of yellow card when transporting. When transporting, protect from direct sunlight and take on cargo without breakage of container, corrosion and leakage. Do not transport with food and feedstuffs. Do not stack heavy good thereupon.</i>

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Special Provisions

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## SECTION 15 Regulatory information (Japan)

	<u>Ca<sub>5</sub>(PO<sub>4</sub>)<sub>3</sub>(OH)</u>	<u>CeO<sub>2</sub></u>
Occupational Safety and Health Law	<i>No data available</i>	<i>No data available</i>
PRTR Law	<i>No data available</i>	<i>No data available</i>
Poisonous and Deleterious Substances control Law	<i>No data available</i>	<i>No data available</i>
Labor Standards Act	<i>No data available</i>	<i>No data available</i>
Chemical substances control Law	<i>No data available</i>	<i>No data available</i>
Fire fighting Law	<i>No data available</i>	<i>No data available</i>
Air Pollution Control Act	<i>No data available</i>	<i>No data available</i>
Water Pollution Prevention Act	<i>No data available</i>	<i>No data available</i>
Water Supply Act	<i>No data available</i>	<i>No data available</i>
Sewerage Act	<i>No data available</i>	<i>No data available</i>
Marine Pollution Prevention Law	<i>No data available</i>	<i>No data available</i>
Waste Management and Public Cleansing Act	<i>No data available</i>	<i>No data available</i>
Note	Ensure this material in compliance with federal requirements and ensure conformity to local regulations.	

## SECTION 16 Other information

The Safety Data Sheet (SDS) has been prepared based on currently available materials, information and data, and may be revised based on new information. Further, the important points in the SDS are made for the purpose of normal handling.

When handling the user product in a specialized manner, take the appropriate safety measures for the application or method.

Further, Canon Optron Inc. has paid sufficient attention to the described contents of the SDS, but does not guarantee the accuracy of its contents.

The SDS prepared by our company includes all findings from our investigation for reference. Not applicable to all items listed.

## Literature Reference

[WEB site]

National Institute of Technology and Evaluation Homepage

Japan Advanced Information Center of Safety and Health Homepage

Ministry of Health, Labour and Welfare Homepage

[Regulatory review Tools]

ezCRIC (Japan Chemical Database Ltd)