
SAFETY DATA SHEET

Revision No. : 4.0

Revision Date : 2018-07-05

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

1.1. Product identifier

Trade name : IND. NIR-880
EC No. : not given yet
REACH Registration No. : not registered yet for this substance as it is exempted from registration, the annual tonnage does not require a registration.

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

Relevant identified uses : Consumer use ; Printing inks
Uses advised against : none
Reason why use advised against : none

1.3. Details of the supplier of the Safety Data Sheet

Manufacturer/Supplier : NANOCMS CO., LTD.
Street address/P.O. Box : 48, 4Sandan-4ro,
Jiksan-eup, Seobuk-gu,
Cheonan-si, Chungcheongnam-do,
Republic of Korea
Country ID/Postcode/Place : KR / 331-814
Telephone number : +82-41-587-3901/2 (telefax number: +82-41-587-3905)
e-mail address of competent person responsible for the SDS : michael-kim@nanocms.co.kr
National contact : none

1.4. Emergency telephone number

Emergency telephone number : +82-41-587-3901/2
Opening hours (only available during the office hours) : AM9~PM6 (KST)
PM6~AM3 (GMT)
Other comments (language(s) of the phone service) : English

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SECTION 2. Hazard identification

2.1. Classification of the substance or mixture

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

Not a hazardous substance according to GHS.

2.1.2. Classification according to Directive 67/548/EEC or 1999/45/EC

This substance is not classified as dangerous according to Directive 67/548 EEC or 1999/45 EC.

2.1.3. Additional information

Classification according to NFPA 704/2007

NFPA rating : Health=0, Flammability=1, Instability=1

2.2. Label elements

2.2.1. Labelling according to Regulation (EC) No. 1272/2008

Hazard pictograms : none

Signal words : none

Hazard statements : none

Precautionary statements : P281 Use personal protective equipment as required.

Supplemental Hazard information (EU) : not applicable

Not a hazardous substance according to GHS.

2.2.2. Labelling according to Directive 67/548 EEC or 1999/45 EC

This substance is not dangerous according to Directive 67/548 EEC or 1999/45 EC.

2.3. Other hazards

2.3.1. The criteria for according to Regulation (EC) No. 1907/2006, Annex XIII

PBT and vPvB assessment are not available as chemical safety assessment is not required.

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SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Substance

Product identifier type in accordance with Article 18(2) of Regulation (EC) No. 1272/2008	Identifier number	Identification name	Weight % content (or range)	EC Number
CAS number and CA Index Name	1962073-83-1	Molybdenum, hydroxyl oxo-29H,31H-phthalocyanine complexes	≥ 49.5 %	-
CAS number and CA Index Name	202665-01-8	Aluminum, ethoxy[29H,31H-phthalocyaninato(2-)-K N29,KN30,KN31,KN32]-,(SP-5-12)-	≥ 49.5 %	-
CAS number and CA Index Name	7732-18-5	Moisture	< 1%	231-791-2

SECTION 4. First aid measures

4.1. Description of first aid measures

- general notes : Consult a physician. Show this safety data sheet to the doctor in attendance.
- if inhaled : If breathed in, move person into fresh air. if not breathing, give artificial respiration.
- in case of skin contact : Wash off with soap and plenty of water.
- in case of eye contact : Flush eyes with as a precaution.
- if swallowed : Never give anything by mouth to an unconscious person. Rinse mouth with water.
- self-protection of the first aider : not data available

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

no data available

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

no data available

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SECTION 5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide (CO₂)
Dry chemical
Alcohol-resistant foam
Water spray

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products : Fire may cause of evolution of nitrogen oxides (NO_x)

5.3. Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

Further information : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapours, mist or gas.

For personal protection see section 8.

6.2. Environmental precautions

No special environmental precautions required.

6.3. Methods and material for containment and cleaning up

Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

If appropriate Section 8 and 13 shall be referred to.

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SECTION 7. Handling and storage

7.1. Precautions for safe handling

Protective measures : No special precautions required.

Advice on general occupational hygiene : Handle in accordance with good industrial hygiene and safety practice.

When using do not eat or drink. Do not swallow. Avoid breathing dust.

Avoid contact with skin, eyes and clothing.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels : Keep container tightly closed in a dry and well-ventilated place.

Further information on storage conditions : cool, dry and dark

7.3. Specific end use(s)

no data available

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SECTION 8. Exposure controls/personal protection

8.1 Control parameters

8.1.1. Occupational Exposure limit values

Contains no substances with occupational exposure limit values.

8.1.2. Information on monitoring procedures

DNELs and PNECs values : no data available

8.2 Exposure controls

8.2.1 Appropriate engineering controls :

The Personal Protective Equipment must be in accordance with EN standards: respirator EN 136, 140, 149; Safety glasses EN 166; protective suit; EN 340, 463, 468, 943-1, 943-2; gloves EN 374, safety shoes EN-ISO 20345.

Avoid contact with eyes.

Do not breathe dust.

8.2.2 Personal protection equipment

8.2.2.1 Eye and face protection : Safety glasses with side-shields

8.2.2.2 Skin protection : Protective suit

Hand protection : Glove materials: All types might be used.
Gloves must be inspected prior to use.
Replace when worn.

Remarks: The specifications are based on information and tests from similar substance by analogy. Due to varying conditions (e.g. temperature or other strains) it must be considered that the usage of a chemical protective glove in practice may be much shorter than the permeation time determined in accordance with EN 374.

8.2.2.3 Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

8.2.3 Environmental exposure controls

Handle in accordance with local environmental regulations and good industrial practices.

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SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

9.1.1 Molybdenum, hydroxyl oxo-29H,31H-phthalocyanine complexes

- | | |
|--|--|
| (a) Appearance | : Solid (slightly yellowish blue powder) |
| (b) Odour | : odourless |
| (c) Odour threshold | : no data available |
| (d) pH | : no data available |
| (e) Melting point | : Not determined up to 260°C at 101.4kPa
Method: OECD TG 102 (by capillary tube in a metal block) |
| (f) Initial boiling point and boiling range | : Not determined up to 260°C at 101.4kPa
Method: OECD TG 103 (by distillation) |
| (g) Flash point | : Not determined below 290°C
Method: EC A9 (by closed cup) |
| (h) Evaporation rate | : no data available |
| (i) Flammability | : No combustion sustained at 20°C
Method : UN TDG Test N.1 |
| (j) Upper/lower flammability or explosive limits | : no data available |
| (k) Vapour pressure | : 8.63 x 10 ⁸ Pa at 25°C, 2.98 x 10 ⁷ Pa at 50°C, 4.99 x 10 ⁷ Pa at 80°C
Method: OECD TG 104 (by effusion) |
| (l) Vapour density | : no data available |
| (m) Relative density | : 1,542kg/m ³ at 26°C
Method: OECD TG 109 (by air comparison pycnometer) |
| (n) Water solubility(ies) | : Insoluble: 0.016g/l at 20°C
Method: OECD TG 105 (by flask) |
| (o) Partition coefficient (n-octanol/water) | : Kow : <0.01, log Kow : <-2.19
Method: OECD TG 105 (by estimation) |
| (p) Auto-ignition temperature | : No self-heating hazard
Method : UN TDG Test N.4 |
| (q) Decomposition temperature | : no data available |
| (r) Viscosity | : not applicable |
| (s) Explosive properties | : No self-reaction hazard
Method : UN TDG Test E.3 |
| (t) Oxidizing properties | : No oxidizing hazard
Method : UN TDG Test O.1 |
| (u) Particle size distribution | : 5.01um (Mean Particle size)
Method: OECD TG 110 (by laser diffraction) |

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SECTION 9. Physical and chemical properties

9.1.2 Aluminum, ethoxy[29H,31H-phthalocyaninato(2-)-KN29,KN30,KN31,KN32]-,(SP-5-12)-

- | | |
|--|--|
| (a) Appearance | : Solid (slightly yellowish blue powder) |
| (b) Odour | : odourless |
| (c) Odour threshold | : no data available |
| (d) pH | : no data available |
| (e) Melting point | : no data available |
| (f) Initial boiling point and boiling range | : no data available |
| (g) Flash point | : no data available |
| (h) Evaporation rate | : no data available |
| (i) Flammability | : no data available |
| (j) Upper/lower flammability or explosive limits | : no data available |
| (k) Vapour pressure | : no data available |
| (l) Vapour density | : no data available |
| (m) Relative density | : no data available |
| (n) Water solubility(ies) | : no data available |
| (o) Partition coefficient (n-octanol/water) | : no data available |
| (p) Auto-ignition temperature | : no data available |
| (q) Decomposition temperature | : no data available |
| (r) Viscosity | : not applicable |
| (s) Explosive properties | : no data available |
| (t) Oxidizing properties | : no data available |
| (u) Particle size distribution | : no data available |

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SECTION 10. Stability and reactivity

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical stability

No decomposition if used as directed.

10.3 Possibility of hazardous reactions

Hazardous polymerization does not occur.

Note: Stable under normal conditions.

10.4 Conditions to avoid

Avoid dust formation.

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire : see section 5

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SECTION 11. Toxicological information

11.1 Information on toxicological effects

11.1.1 Molybdenum, hydroxyl oxo-29H,31H-phthalocyanine complexes

Acute Oral Toxicity	: LD50 Species: SD rat Category 5 (Value: 2000mg/kg < LD50 < 5000mg/kg) Method: OECD TG 423
Acute Skin Irritation/Corrosion	: Species: NZW rabbit Result: Non-irritant Method: OECD TG 404
Acute Eye Irritation/Corrosion	: Species: NZW rabbit Result: Non-irritant Method: OECD TG 405
Skin Sensitization	: Species: Guinea pig Classification: Non-sensitizing Method: OECD TG 406 (Buehler Test)
Bacterial Reverse Mutation Test	: Species: S. typhimurium Result: negative Method: OECD TG 471 (Ames Test)

11.1.2 Aluminum, ethoxy[29H,31H-phthalocyaninato(2-)-KN29,KN30,KN31,KN32]-,(SP-5-12)-

Acute Oral Toxicity	: no data available
Acute Skin Irritation/Corrosion	: no data available
Acute Eye Irritation/Corrosion	: no data available
Skin Sensitization	: no data available
Bacterial Reverse Mutation Test	: no data available

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S**SECTION 12. Ecological information**

12.1 Toxicity

11.1.1 Molybdenum, hydroxyl oxo-29H,31H-phthalocyanine complexes

Acute (short-term) Toxicity Test

Fish, Acute Toxicity Test	: LC50
	Species: Danio rerio
	Value: > 0.5 mg/L
	Exposure time: 96 h
	Method: OECD TG 203
Daphnia sp. Acute Immobilisation Test	: EC50
	Species: Daphnia magna
	Value: > 0.5 mg/L
	Exposure time: 48 h
	Method: OECD TG 202

11.1.2 Aluminum, ethoxy[29H,31H-phthalocyaninato(2-)-KN29,KN30,KN31,KN32]-,(SP-5-12)-

Fish, Acute Toxicity Test : no data available

Daphnia sp. Acute Immobilisation Test : no data available

12.2 Persistence and degradability

Ready Biodegradability : no data available

12.3 Bioaccumulative potential

12.3.1 Molybdenum, hydroxyl oxo-29H,31H-phthalocyanine complexes

Partition Coefficient (n-octanol /water)	: Value: Log Kow: <-2.19
	Method: OECD TG 105 (by estimation)

12.3.2 Aluminum, ethoxy[29H,31H-phthalocyaninato(2-)-KN29,KN30,KN31,KN32]-,(SP-5-12)-

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

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

PBT and vPvB assessment are not available as chemical safety assessment is not required.

12.6 Other adverse effects

no data available

12.7 Additional information

Restriction of Hazardous Substances [Cd, Cr(VI), Hg, Pd, Total-PBBs, Total-PBDEs] are not detected.

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SECTION 13. Disposal considerations

13.1 Waste treatment methods

Product	: Dispose according to legal requirements.
Packaging	: Legal requirements are to be considered in regard of reuse or disposal of used packaging materials.
Further information	: Provisions relating to waste: EC Directive 2008/98/EC Regulation No. 1013/2006

SECTION 14. Transport information

14.1. UN number

ADR/RID : - IATA: - IMDG : -

14.2. UN proper shipping name

ADR/RID : Not dangerous goods
 IATA : Not dangerous goods
 IMDG : Not dangerous goods

14.3. Transport hazard class(es)

ADR/RID : - IATA: - IMDG : -

14.4. Packing group

ADR/RID : - IATA: - IMDG : -

14.5 Environmental hazards

ADR/RID : - IATA: - IMDG : -

14.6 Special precautions for user

no data available.

SECTION 15. Regulatory Information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Other inventory information

Note : Because of the potential specific inventory listing of components of this product line, further, more detailed information can be requested from NANOCMS CO., LTD.

Toxic Substance Control Act (TSCA) Inventory	: not registered
European Inventory of Existing Chemical Substances (EINECS)	: not registered
European Inventory of Notified Chemical Substances (ELINCS)	: not registered
Korea Existing Chemical List (KECL)	: not registered

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance by the supplier.

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SECTION 16. Other information

Issued date	: 2016-02-27
Revision No.	: 4.0
Revision date	: 2018-07-05
Indication of changes	: for applying Regulation (EC) No. 1272/2008 [CLP]

Abbreviations and acronyms :

EC	European Community
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging of Substance and Mixtures
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
OECD	Organization for Economic Co-operation and Development
UN	The United Nations
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods

Key literature references and sources for data

Chemical Abstracts Service
Korea Testing & Research Institute
Korea Institute of Toxicology
Biototech Company Limited
Korea Polymer Testing & Research Institute
Korea MSDS Testing Laboratory

Further information

This Safety Data Sheet was prepared sincerely on the basis of the knowledge and information we could obtained. But any warranty shall not be given regarding properties of the product. It is designed only as guidance. Some new information or amendments may be added afterwards. NANOCMS Corporation Limited shall not be held liable for any damage resulting from handling or from contact with the above product.