

# SAFETY DATA SHEET

**Date Printed** : 9 September 2016  
**Date Updated** : 9 September 2016  
**Version** : Rev. 4.2  
**Regulation** : In accordance with Regulation (EU) 453/2010 (REACH), Annex II

## 1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

### 1.1 Product identifier

**Name of the Product** : Red 620

| Substance Name  | CAS No.      | EC No.    | REACH Registration No. |
|---|--------------|-----------|------------------------|
| tris(7-chloro-1-cyclopropyl-6-fluoro-4-oxo-1,4-dihydroquinoline-3-carboxylato-kO)europium | 1417311-00-2 | 809-940-3 | 01-2120102482-71-0000  |

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

**Relevant identified uses :**

#### Formulation

| Identified Use (IU) name              | Process Category (PROC)   | Environmental Release Category (ERC) | Product Category (PC)  | Sector of Use (SU) | Article Category (AC) |
|---------------------------------------|---|--------------------------------------|------------------------|--------------------|-----------------------|
| # 1 : Formulation of pigment for inks | PROC 5: Mixing or blending in batch processes for formulation of preparations and articles(multistage and/or significant contact) | ERC2 : Formulation into mixture      | PC 30: Photo-chemicals | N/A                | N/A                   |

#### Uses by workers in industrial settings

| Identified Use (IU) name               | Process Category (PROC)   | Environmental Release Category (ERC) | Product Category (PC)  | Sector of Use (SU)  | Article Category (AC) |
|--|---|--------------------------------------|------------------------|---|-----------------------|
| #1: Industrial use of pigment for inks | PROC 5: Mixing or blending in batch processes for formulation of preparations and articles(multistage and/or significant contact) | N/A                                  | PC 30: Photo-chemicals | SU 9: Manufacture of fine chemicals<br>SU 24: Scientific research and development | N/A                   |

#### Article service life

| Identified Use (IU) name | Process Category (PROC) | Environmental Release Category (ERC)                            | Product Category (PC) | Sector of Use (SU) | Article Category (AC) |
|--------------------------|-------------------------|---|-----------------------|--------------------|-----------------------|
| #1: Article use          | N/A                     | ERC10a:<br>Widespread use of articles with low release(outdoor) | N/A                   | N/A                | AC8: Paper articles   |

**Uses advised against** : No information available.

### 1.3 Details of the supplier of the Safety Data Sheet

**Company name** : NANOCMS CO., LTD.  
**Address** : 48, 4 sandan 4-ro, Jiksan-eup, Seobuk-gu, Cheonan-si, Chungcheongnam-do, 331-814, KOREA  
**Contact Telephone** : +82-41-587-3901/2  
**Fax** : +82-41-587-3905  
**Email Address** : michael-kim@nanocms.co.kr

**1.4. Emergency Telephone** : +82-70-4469-9460

## 2. HAZARDS IDENTIFICATION

## 2.1 Classification of the substance or mixture

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

Aquatic Chronic 2

Classification according to Directive 67/548/EEC (see SECTION 16 for full text of risk phrases)

Dangerous for the environment;N;R51-53

## 2.2 Label elements

Hazard pictograms :



Signal word : Warning

Hazard statements :

H411 : Toxic to aquatic life with long lasting effects.

Additional precautionary statements :

P273 : Avoid release to the environment.

P391 : Collect spillage.

P501 : Dispose the contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards : According to Annex XII, the substance does not meet PBT or vPvB criteria.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

| Component   | CAS No.   | EC No.       | Concn / % | Classification |
|---|-----------|--------------|-----------|----------------|
| tris(7-chloro-1-cyclopropyl-6-fluoro-4-oxo-1,4-dihydroquinoline-3-carboxylato-kO)europium | 809-940-3 | 1417311-00-2 | 100 %     | See section.2  |

## 4. FIRST-AID MEASURES

### 4.1 Description of first aid measures

- After eye contact :**
- Call emergency medical service.
  - In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- After skin contact :**
- Call emergency medical service.
  - Remove and isolate contaminated clothing and shoes.
  - In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- After inhalation :**
- Move victim to fresh air.
  - Give artificial respiration if victim is not breathing.
  - Administer oxygen if breathing is difficult.
- After ingestion :**
- Call emergency medical service.

### 4.2 Most important symptoms and effects

**Acute effects**

No acute effects are anticipated if first aid treatment is applied and is effective.

**Delayed effects**

Toxic to aquatic life with long lasting effects.

### 4.3 Indication of immediate medical attention and notes for physician

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

## 5. FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media

**Suitable Extinguishing Media :**

- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.

**Unsuitable Extinguishing Media :** - Use dry sand or earth to smother fire.

## 5.2 Special hazards arising from the substance or mixture

- Specific hazards :**
- Containers may explode when heated.
  - Some of these materials may burn, but none ignite readily.
  - Fire may produce irritating and/or toxic gases.

## 5.3 Advice for firefighters

- Evacuate area and fight fire from a safe distance.
- Some may be transported hot.
- Dike fire-control water for later disposal; do not scatter the material.
- Move containers from fire area if you can do it without risk.
- Fire involving Tanks; Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks; Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Fire involving Tanks; Always stay away from tanks engulfed in fire.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

- Clean up spills immediately, observing precautions in Protective Equipment section.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent dust cloud.
- Please note that there are materials and conditions to avoid.

### 6.2 Environmental precautions

- Avoid release to the environment.
- Prevent entry into waterways, sewers, basements or confined areas.
- Pay attention so that product does not flow into the sewage or public water area.

### 6.3 Methods and material for containment and cleaning up

- Collect spillage.
- Absorb spills with inert material (e.g., dry sand or earth), then place in a chemical waste container.
- Absorb the liquid and scrub the area with detergent and water.
- Large Spill; Dike far ahead of liquid spill for later disposal.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.
- Powder Spill; Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- Small Spill; Take up with sand or other non-combustible absorbent material and place into containers for later disposal.

### 6.4 Reference to other sections

- See also sections 8 and 13 of the Safety Data Sheet.

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Please note that there are materials and conditions to avoid.
- Please work with reference to engineering controls and personal protective equipment.
- Be careful to high temperature.

### 7.2 Conditions for safe storage, including any incompatibilities

- Not classified

### 7.3 Specific end use(s)

- Not available

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters

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## Occupational Exposure Limits :

- o ACGIH regulation : Not available
- o Biological exposure index : Not available
- o OSHA regulation : Not available
- o NIOSH regulation : Not available
- o EU regulation : Not available

## Occupational Exposure Controls :

| Exposure route of relevance | DNELs, DMELs, PNECs      |                             |                           |                             |                          |                             |                           |                              |                          |                             |                           |                              |
|-----------------------------|--------------------------|-----------------------------|---------------------------|-----------------------------|--------------------------|-----------------------------|---------------------------|------------------------------|--------------------------|-----------------------------|---------------------------|------------------------------|
|                             | Industrial               |                             |                           |                             | Professional             |                             |                           |                              | Consumer                 |                             |                           |                              |
|                             | Long term, local effects | Long term, systemic effects | Short term, local effects | Short term, systemic effect | Long term, local effects | Long term, systemic effects | Short term, local effects | Short term, systemic effects | Long term, local effects | Long term, systemic effects | Short term, local effects | Short term, systemic effects |
| Human: oral                 | -                        | -                           | -                         | 33.33                       | -                        | -                           | -                         | -                            | -                        | -                           | -                         | -                            |
| Human: inhalation           | -                        | -                           | -                         | -                           | -                        | -                           | -                         | -                            | -                        | -                           | -                         | -                            |
| Human: dermal               | -                        | -                           | -                         | -                           | -                        | -                           | -                         | -                            | -                        | -                           | -                         | -                            |
| Environment: water          | PNEC = 0.023             |                             |                           |                             |                          |                             |                           |                              |                          |                             |                           |                              |
| Environment: air            | -                        |                             |                           |                             |                          |                             |                           |                              |                          |                             |                           |                              |
| Environment: soil           | PNEC = 0.004             |                             |                           |                             |                          |                             |                           |                              |                          |                             |                           |                              |
| Environment: sediment       | -                        |                             |                           |                             |                          |                             |                           |                              |                          |                             |                           |                              |
| Environment: STP            | -                        |                             |                           |                             |                          |                             |                           |                              |                          |                             |                           |                              |
| Environment: oral           | -                        |                             |                           |                             |                          |                             |                           |                              |                          |                             |                           |                              |

## 8.2 Exposure controls

### Individual protection measures, such as personal protective equipment :

#### Respiratory protection :

- Wear NIOSH or European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment when necessary.
- In case exposed to particulate material, the respiratory protective equipments as follow are recommended. ;facepiece filtering respirator or air-purifying respirator, high-efficiency particulate air(HEPA) filter media or respirator equipped with powered fan, filter media of use(dust, mist, fume)
- In lack of oxygen(< 19.5%), wear the supplied-air respirator or self-contained breathing apparatus.

#### Eye protection :

- Wear breathable safety goggles to protect from particulate material causing eye irritation or other disorder.
- An eye wash unit and safety shower station should be available nearby work place.

#### Hand protection :

- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

#### Body protection :

- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.

### Environmental exposure controls :

- Prevent entry into waterways, sewers, basements or confined areas.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

## 9.1 Information on basic physical and chemical properties

### Appearance

|   |  |
|---|--|
| <b>Description :</b>                                  | Solid  |
| <b>Color :</b>  | Not available                                    |
| <b>Odor :</b>   | Odourless  |
| <b>Odor threshold :</b>                               | No information available.                        |
| <b>pH :</b>   | No information available.                        |
| <b>Melting point/freezing point :</b>                 | 213°C (at 100.5kPa)                              |
| <b>Initial boiling point and boiling range :</b>      | > 260°C (Not Determined up to 260°C at 102.1kPa) |
| <b>Flash point :</b>                                  | > 290°C (Not Determined below 290°C, closed cup) |
| <b>Evaporation rate :</b>                             | No information available.                        |
| <b>Flammability (solid, gas) :</b>                    | No information available.                        |
| <b>Upper/lower flammability or explosive limits :</b> | No information available.                        |
| <b>Vapor pressure :</b>                               | $1.98 \times 10^{-7}$ Pa (20 °C)                 |
| <b>Solubility (ies) :</b>                             | 0.011 g/L (20 °C, insoluble)                     |
| <b>Vapor density :</b>                                | No information available.                        |
| <b>Relative density :</b>                             | 1741kg/m <sup>3</sup> (23 °C)                    |
| <b>Partition coefficient: n-octanol/water :</b>       | $\log K_{ow} = 1.16 \sim 1.32$                   |
| <b>Auto ignition temperature :</b>                    | No information available.                        |
| <b>Decomposition temperature :</b>                    | No information available.                        |
| <b>Viscosity :</b>                                    | No information available.                        |
| <b>Explosive properties :</b>                         | No information available.                        |
| <b>Oxidizing properties :</b>                         | No information available.                        |
| <b>Molecular weight :</b>                             | 993.95g/mol                                      |

## 9.2 Other information :

|                          |               |
|--------------------------|---------------|
| <b>Surface tension :</b> | Not available |
|--------------------------|---------------|

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity/Chemical stability/Possibility of hazardous reactions

- Some of these materials may burn, but non ignite readily
- Stable under normal temperatures and pressures.
- Containers may explode when heated.
- Fire may produce irritating and/or toxic gases.
- Some liquids produce vapors that may cause dizziness or suffocation.
- Inhalation of material may be harmful.

### 10.2 Conditions to avoid : Heat

### 10.3 Incompatible materials : None known.

### 10.4 Hazardous decomposition products : Irritating and/or toxic gases

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicology effects

#### Acute toxicity;

|                   |   |
|-------------------|---|
| <b>Oral</b>       | - Rat, LD <sub>50</sub> > 2000 mg/kg (OECD TG 423, GLP) |
| <b>Dermal</b>     | - No information available.                             |
| <b>Inhalation</b> | - No information available.                             |

|  |   |
|--|---|
| <b>Skin Corrosion/ Irritation;</b>                       | - In skin irritation study with rabbits, no skin irritation was caused. (OECD TG 404, GLP)  |
| <b>Serious Eye Damage/ Irritation;</b>                   | - In eye irritation study with rabbits, no eye irritation was caused. (OECD TG 405)   |
| <b>Respiratory sensitization;</b>                        | - No information available.   |
| <b>Skin Sensitization;</b>                               | - This substance is considered to have no skin sensitizing potency in guinea pigs by Buehler test under the conditions of this study.(OECD TG 406, GLP) |
| <b>Carcinogenicity;</b>                                  | - KOREA-ISHL, IARC, NTP, OSHA, ACGIH, EU Regulation 1272/2008: Not listed   |
| <b>Mutagenicity;</b>                                     | - This substance was not mutagenic(negative) in bacterial reverse mutation assay test using salmonella typhimurium and Ecoli. (OECD TG 471, GLP)        |
| <b>Reproductive toxicity;</b>                            | - No information available.   |
| <b>Specific target organ toxicity (single exposure);</b> | - In acute oral toxicity study with rats, no significant adverse effects were observed. (OECD TG 423, GLP)  |
| <b>Specific target organ toxicity (repeat exposure);</b> | - No information available.   |
| <b>Aspiration Hazard;</b>                                | - No information available.   |

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

#### Acute toxicity

Fish(*Oryzias latipes*), 96hr-LC<sub>50</sub> > 15.51 mg/L (OECD TG 203, GLP)

Invertebrates (*Daphnia magna*), 48hr-EC<sub>50</sub>= 2.289 ~ 3.354 mg/L (OECD TG 202, GLP)

Algae(*Raphidocelis subcapitata*), 72hr-ErC<sub>50</sub>= 4.68 mg/L (OECD TG 201, GLP), 72hr-NOEC(*Raphidocelis subcapitata*) = 0.9mg/L (OECD TG 201, GLP)

- No information available.

#### Chronic toxicity

### 12.2 Persistence and degradability

- Persistence: No information available.

- Degradability: No information available.

### 12.3 Bioaccumulative potential

- Bioaccumulation : No information available.

- Biodegradation : As not well-biodegraded, it is expected to have high accumulation potential in living organisms (0% biodegradation was observed after 28 day ). The percentage biodegradation of the test item was a negative value. (0.0%)(OECD TG 301C, GLP)

### 12.4 Mobility in soil

- No information available.

### 12.5 Results of PBT and vPvB assessment

- This substance is not considered a PBT/vPvB.

### 12.6 Other adverse effects

- No information available.

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Disposal Methods

- Waste from residues: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

- Container: Consider the required attentions in accordance with waste treatment management regulation.

**Precautions for disposal:** Observe all regulations made by administration

## 14. TRANSPORT INFORMATION

### 14.1 UN number

: 3077

|  |  |
|--|--|
| <b>14.2 UN proper shipping name</b>  | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. |
| <b>14.3 Transport hazard class</b>   | : 9  |
| <b>14.4 Packing group</b>  | : III  |
| <b>14.5 Environmental hazards</b>  | : Not applicable                                     |
| <b>14.6 Special precautions for user</b>   |  |
| - in case of fire  | : F-A  |
| - in case of leakage   | : S-F  |
| <b>14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b> | : Not applicable                                     |

## 15. REGULATORY INFORMATION

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

|   |                  |
|---|------------------|
| EU Regulatory Information                             |                  |
| EU classification                                     |                  |
| Annex I of Directive 67/548/EEC :                     |                  |
| Classification :                                      | Not regulated    |
| Risk phrases :  | Not regulated    |
| Safety phrases :                                      | Not regulated    |
| EU CLP 2008 :   |                  |
| Classification :                                      | classified       |
| Hazard statement codes :                              | H411             |
| Precautionary statement codes :                       | P273, P391, P501 |
| EU SVHC list :  | Not regulated    |
| EU Authorisation List :                               | Not regulated    |
| EU Restriction list :                                 | Not regulated    |
| Foreign Regulatory Information                        |                  |
| U.S.A management information (OSHA Regulation) :      | Not regulated    |
| U.S.A management information (CERCLA Regulation) :    | Not regulated    |
| U.S.A management information (EPCRA 302 Regulation) : | Not regulated    |
| U.S.A management information (EPCRA 304 Regulation) : | Not regulated    |
| U.S.A management information (EPCRA 313 Regulation) : | Not regulated    |

### 15.2 Chemical safety assessment :

- This substance was registered in the tonnage band of 1-10 t/y under EU-REACH. In accordance with REACH Article 14, a Chemical Safety Assessment has not been carried out for this substance.

## 16. OTHER INFORMATION

Product safety data sheet was prepared for tris(7-chloro-1-cyclopropyl-6-fluoro-4-oxo-1,4-dihydroquinoline-3-carboxylato-kO)europium in accordance with Regulation (EU) 453/2010 (REACH), Annex II

### 16.1 Indication of changes:

**Version** : Rev. 4.2

**Revision date** : 9 September 2016

### 16.2. Abbreviations and acronyms:

**CLP** = Classification Labelling Packaging Regulation ; Regulation (EC) No 1272/2008

**CAS No.** = Chemical Abstracts Service number

**DNEL** = Derived No Effect Level

**EC Number** = EINECS and ELINCS Number (see also EINECS and ELINCS)

**EU** = European Union

**OSHA** = European Agency for Safety and Health at work

**PBT** = Persistent, Bioaccumulative and Toxic substance

**PNEC(s)** = Predicted No Effect Concentration(s)

**REACH** = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006

**SVHC** = Substances of Very High Concern

**vPvB** = Very Persistent and Very Bioaccumulative

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### 16.3 Key literature reference and sources for data:

- American Conference of Governmental Industrial Hygienists TLVs and BEIs.
- Chemical Safety Report (CSR)
- EU CLP; <http://esis.jrc.ec.europa.eu/index.php?PGM=cla>
- IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>
- National Toxicology Program; [http://ntp-apps.niehs.nih.gov/ntp\\_tox/index.cfm](http://ntp-apps.niehs.nih.gov/ntp_tox/index.cfm)
- NIOSH Pocket Guide; <http://www.cdc.gov/niosh/npg/npgdcas.html>
- REACH information on registered substances; <http://apps.echa.europa.eu/registered/registered-sub.aspx>
- TOMES-LOLI®; <http://www.rightanswerknowledge.com/loginRA.asp>

### 16.4 Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]: Not applicable

### 16.5 Relevant R-phrases and/or H-statements (number and full text):

- R51 : Toxic to aquatic organisms
- R52 : Harmful to aquatic organisms
- R53 : May cause long-term adverse effects in the aquatic environment

**16.6 Training advice:** Do not handle until all safety precautions have been read and understood.

### 16.7 Further information:

**This safety data sheet (SDS) is based on the legal provisions of the REACH Regulation, as amended. Its contents are intended as a guide to the appropriate precautionary handling of the material. It is the responsibility of recipients of this SDS to ensure that the information contained therein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. Information and instructions provided in this SDS are based on the current state of scientific and technical knowledge at the date of issue indicated. It should not be construed as any guarantee of technical performance, suitability for particular applications, and does not establish a legally valid contractual relationship.**

### ANNEX TO THE SDS

tris(7-chloro-1-cyclopropyl-6-fluoro-4-oxo-1,4-dihydroquinoline-3-carboxylato-kO)europium is classified for human health or the environment, is not a CMR and is not PBT or vPvB. This substance was registered in the tonnage band of 1-10 t/y under EU-REACH. An exposure assessment and the calculation of risk characterization ratios are therefore not required.