# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
GB/T 16483-2008, GB/T 17519-2013

**Product Name** ET5200-8051 NHFR BK001
**Revision date** 17-11-2026
**Version** 1
**(M)SDS Number** PRD_EM10063448

## 1. Identification

**Product identifier**

**Product Name** ET5200-8051 NHFR BK001

**Product Code** EM10063448

Material number(s) EM1006344810;EM10063448BG

**Other means of identification**

**(M)SDS Number** PRD_EM10063448

**Substance/mixture** Mixture

**Details of the supplier of the safety data sheet**

**Supplier**
Avient Corporation
2F, Block C, 200 Jinsu Road
Pudong Shanghai, China 201206

**E-mail address** RegulatoryServicesAsia@Avient.com

**Company Phone Number** +86 60284888

**Emergency telephone number**

**Emergency telephone number** (Chemtrec 24h) +65 3163 8374

**Recommended use of the chemical and restrictions on use**

**Recommended use** For industrial use only

**Restrictions on use** None

## 2. Hazard(s) identification

This mixture has not been evaluated as a whole. Information provided on the health effects of this product is based on individual components. All ingredients are bound and potential for hazardous exposure as shipped is minimal. However, some vapors may be released upon heating and the end-user (fabricator) must take the necessary precautions (mechanical ventilation, respiratory protection, etc.) to protect employees from exposure.After handling, always wash hands thoroughly with soap and water.

### Emergency Overview

Causes serious eye irritation
Harmful to aquatic life with long lasting effects

**Appearance** Pellet
**Physical state** Solid
**Odor** No information available

**Classification of the substance or mixture**

Not a hazardous substance or mixture according to the Globally Harmonized System (GHS).

**Label elements**

No label elements required.

**Hazard statements**
No hazard statements required.

**Precautionary statements**

**Physical and chemical hazards**
Not applicable.

**Health hazards**
Immediate Health Effects: Causes severe irritation (tears, blurred vision and redness). Irritating, but will not permanently injure eye tissue.
Chronic effects: Not applicable.

**Environmental hazards**
Dangerous for the environment. This material is a water pollutant. Keep out of drains, sewers, ditches and waterways. Minimize use of water to prevent environmental contamination.

**Other hazards which do not result in classification**
No information available.

## 3. Composition/information on ingredients

**Substance**

Not applicable.

**Mixture**

| Chemical name | Weight-% | CAS No. |
|---|---|---|
| Diphosphoric acid, compound with piperazine (1:1) | 10 - 20% | 66034-17-1 |
| Zinc oxide (ZnO) | 0.1 - 1% | 1314-13-2 |

## 4. First-aid measures

**Description of necessary first aid measures**

**General advice** Show this safety data sheet to the doctor in attendance.

**Skin contact** Do not try to remove solidified material from the skin. Wash skin with soap and water. Take off contaminated clothing and wash before reuse. In the case of skin irritation or allergic reactions see a physician.

**Eye contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and

persists.

**Inhalation** Remove to fresh air.

**Ingestion** Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

**Most important symptoms/effects, acute and delayed**

**Symptoms** May cause redness and tearing of the eyes. Burning sensation.

**Effects of Exposure** None.

**For emergency responders** Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

**Note to physicians** Treat symptomatically.

## 5. Fire-fighting measures

**Extinguishing media**

**Suitable Extinguishing Media** Dry chemical, CO2, water spray or regular foam.

**Unsuitable extinguishing media** Do not use water jetstream.

**Specific hazards arising from the chemical** No information available.

**Hazardous combustion products** Decomposition products can include and are not limited to:.
Carbon monoxide.
Carbon dioxide (CO2).
Nitrogen oxides (NOx).
Ammonia.
Phosphorus oxides.
Phosphine.
Metal oxides.

**Special protective actions for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protective equipment.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions** Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

**Other information** Refer to protective measures listed in Sections 7 and 8.

**For emergency responders** Use personal protection recommended in Section 8.

**Environmental precautions** Prevent entry into waterways, sewers, basements or confined areas. Do not allow to enter into soil/subsoil. See Section 12 for additional Ecological Information.

**Methods and material for containment and cleaning up** Prevent further leakage or spillage if safe to do so. Pick up and transfer to properly labeled containers.

**Precautions to prevent secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## 7. Handling and storage

**Precautions for safe handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Wear protective gloves, eye protection and face protection. Do not eat, drink or smoke when using this product.

**Conditions for safe storage, including any incompatibilities** Keep containers tightly closed in a dry, cool and well-ventilated place.

**Incompatible materials** None known based on information supplied.

## 8. Exposure controls/personal protection

**Occupational exposure limits**

| Chemical name | China GBZ 2.1 | ACGIH TLV |
|---|---|---|
| Diphosphoric acid, compound with piperazine (1:1) (66034-17-1) | - | TWA: 0.03 ppm inhalable fraction and vapor<br>DS<br>RS |
| Zinc oxide (ZnO) (1314-13-2) | TWA: 3 mg/m³;<br>STEL: 5 mg/m³; | TWA: 2 mg/m³ respirable particulate matter<br>STEL: 10 mg/m³ respirable particulate matter |

**Note** See section 16 for terms and abbreviations

**Biological occupational exposure limits**
This product, as supplied, contains materials that do not have reportable biological exposure limits or are not subject to the reporting requirements of the local jurisdiction.

**Monitoring and observation processes**
No applicable information was found.

**Engineering controls** Ensure adequate ventilation, especially in confined areas. Apply technical measures to comply with the occupational exposure limits.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Skin and body protection** Wear suitable protective clothing.

**Hand protection** Wear suitable gloves.

**Respiratory protection** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

## 9. Physical and chemical properties

**Information on basic physical and chemical properties**

| | |
|---|---|
| **Appearance** | Pellet |
| **Physical state** | Solid |
| **Color** | black |
| **Odor** | Slight |
| **Odor threshold** | No information available |

| **Property** | **Values** | **Remarks • Method** |
|---|---|---|
| **pH** | No data available | None known |
| **Melting point / freezing point** | No data available | None known |
| **Initial boiling point and boiling range** | No data available | None known |
| **Flash point** | No data available | None known |
| **Evaporation rate** | No data available | None known |
| **Flammability** | No data available | None known |
| **Flammability Limit in Air** | | None known |
| **Upper flammability or explosive limits** | No data available | |
| **Lower flammability or explosive limits** | No data available | |
| **Vapor pressure** | No data available | None known |
| **Relative vapor density** | No data available | None known |
| **Relative density** | No data available | None known |
| **Water solubility** | No data available | None known |
| **Solubility(ies)** | No data available | None known |
| **Partition coefficient** | No data available | None known |
| **Autoignition temperature** | No data available | None known |
| **Decomposition temperature** | No data available | None known |
| **SADT (°C)** | No data available | None known |
| **Kinematic viscosity** | No data available | None known |
| **Dynamic viscosity** | No data available | None known |

**Additional information**

## 10. Stability and reactivity

**Stability** Stable under recommended storage conditions.

**Possibility of hazardous reactions** None under normal processing.

**Reactivity** No information available.

**Conditions to avoid** Keep away from open flames, hot surfaces and sources of ignition. static discharge (electrostatic discharge). Storage near to reactive materials. Dust formation. Protect from moisture.

**Incompatible materials** Strong oxidizing agents, strong acids, and strong bases.

**Hazardous decomposition products** None under normal use conditions.

## 11. Toxicological information

This mixture has not been evaluated as a whole for health effects. Exposure effects listed are based on existing health data for the individual components which comprise the mixture.

**Information on likely routes of exposure**

**Product Information**

**Inhalation** Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

**Skin contact** Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation.

**Eye contact** Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

**Ingestion** Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Symptoms** May cause redness and tearing of the eyes. Burning sensation.

**Acute toxicity** Based on available data, the classification criteria are not met.

**Numerical measures of toxicity** No information available

**Component Information**

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Diphosphoric acid, compound with piperazine (1:1) (66034-17-1) | - | > 2000 mg/kg ( Rat ) | - |

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** Based on available data, the classification criteria are not met.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.

**Respiratory or skin sensitization** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** Based on available data, the classification criteria are not met.

**Reproductive toxicity** Based on available data, the classification criteria are not met.

**Specific target organ toxicity (single exposure)** Based on available data, the classification criteria are not met.

**Specific target organ toxicity (repeated exposure)** Based on available data, the classification criteria are not met.

**Aspiration hazard** Based on available data, the classification criteria are not met.

## 12. Ecological information

**Ecotoxicity** Harmful to aquatic life with long lasting effects.

**Persistence and degradability** No information available.

**Bioaccumulative potential** No information available.

**Mobility in soil** No information available.

**Other adverse effects** No information available.

## 13. Disposal considerations

**Waste chemicals** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## 14. Transport information

**JT/T 617** Not regulated

**IMDG** Not regulated

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** No information available

**IATA** Not regulated

**Special precautions for user**
Please refer to the applicable dangerous goods regulations for additional information

## 15. Regulatory information

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

**National regulations**

**Law of the People's Republic of China on Prevention and Control of Occupational Diseases**

Catalog of occupational hazard factors: Listed. Chemical hazards.
Catalog of occupational diseases: Listed. Occupational poisoning.

| Chemical name | Category |
|---|---|
| Zinc oxide (ZnO) | Chemical hazards |

**Regulations on the Control over Safety of Hazardous Chemicals**
Catalog of Hazardous Chemicals
Not applicable.

GB 18218-2018 Identification of major hazard installations for dangerous chemicals Not applicable

**List of hazardous chemicals under priority management** Not applicable

**Regulations on Labor Protection in Workplaces Where Toxic Substances Are Used**
Inventory of highly toxic goods Not applicable

**Regulations for Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**
Catalog of Severely Restricted Toxic Chemicals Not applicable

**Measures for the Environmental Management of New Chemical Substances**
**IECSC - China Inventory of Existing Chemical Substances** Complies.

**International Regulations**

**The Rotterdam Convention** Not applicable

**International Inventories**

| | |
|---|---|
| **TSCA** | Not determined |
| **DSL/NDSL** | Complies |
| **ENCS** | Not determined |
| **IECSC** | Complies |
| **KECL** | Complies |
| **PICCS** | Not determined |
| **AIIC** | Not determined |
| **NZIoC** | Not determined |
| **TCSI** | Not determined |

## 16. Other information

**Revision date** 17-11-2026

**Revision Note**

**Abbreviations and acronyms**

**Key or legend to abbreviations and acronyms used in the safety data sheet**
*List may include phrases which are not applicable to this product*

| | |
|---|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| ADN | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe) |
| ADR | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe) |
| AIIC | Australian Inventory of Industrial Chemicals |
| ATE | Acute Toxicity Estimate |
| ASTM | American Society for the Testing of Materials |
| bar | Biological Reference Values for Chemical Compounds in the Work Area |
| BAT | Biological tolerance values for occupational exposure |
| BEL | Biological exposure limits |
| bw | Body weight |
| Ceiling | Maximum limit value |
| CMR | Carcinogen, Mutagen or Reproductive Toxicant |
| DOT | Department of Transportation (United States) |
| DSL | Domestic Substances List (Canada) |
| EINECS | European Inventory of Existing Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| ENCS | Existing and New Chemical Substances (Japan) |
| EPA | U.S. Environmental Protection Agency |
| GHS | Globally Harmonized System |
| IARC | International Agency for Research on Cancer |

| | |
|---|---|
| IATA | International Air Transport Association |
| IBC | International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk |
| ICAO | International Civil Aviation Organization |
| IECSC | Inventory of Existing Chemical Substances in China |
| IMDG | International Maritime Dangerous Goods |
| IMO | International Maritime Organization |
| ISO | International Organization for Standardization |
| KECI | Korean Existing Chemicals Inventory |
| LC50 | Lethal Concentration to 50% of a test population |
| LD50 | Lethal Dose to 50% of a test population (Median Lethal Dose) |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| NDSL | Non-Domestic Substances List (Canada) |
| n.o.s. | Not Otherwise Specified |
| NOAEC | No Observed Adverse Effect Concentration |
| NOAEL | No Observed Adverse Effect Level |
| NOELR | No Observable Effect Loading Rate |
| NZIoC | New Zealand Inventory of Chemicals |
| OECD | Organization for Economic Cooperation and Development |
| OEL | Occupational exposure limits |
| PBT | Persistent, Bioaccumulative and Toxic substance |
| PICCS | Philippines Inventory of Chemicals and Chemical Substances |
| PMT | Persistent, Mobile and Toxic |
| PPE | Personal protective equipment |
| QSAR | Quantitative Structure Activity Relationship |
| RID | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe) |
| SADT | Self-Accelerating Decomposition Temperature |
| SAR | Structure-activity relationship |
| SDS | Safety Data Sheet |
| SL | Surface Limit |
| STEL | Short Term Exposure Limit |
| STOT RE | Specific target organ toxicity - Repeated exposure |
| STOT SE | Specific target organ toxicity - Single exposure |
| TCSI | Taiwan Chemical Substance Inventory |
| TDG | Transport of Dangerous Goods (Canada) |
| TSCA | Toxic Substances Control Act (United States) |
| TWA | Time-Weighted Average |
| UN | United Nations |
| VOC | Volatile organic compounds |
| vPvB | Very Persistent and Very Bioaccumulative |
| vPvM | Very Persistent and Very Mobile |
| As | Allergenic substance |
| C_G1 | Group 1 - Carcinogenic to humans |
| C_G2A | Group 2A - Probably carcinogenic to humans |
| C_G2B | Group 2B - Possibly carcinogenic to humans |
| DS | Dermal Sensitizer |
| Ot | Ototoxicant |
| pOt | Ototoxicant - potential to cause hearing disorders |
| PS | Photosensitizer |
| RS | Respiratory Sensitizer |
| S | Sensitizer |
| poS | Sensitizer - capable of causing occupational asthma |
| Sa | Simple asphyxiant |
| Sd | Skin designation |
| pSd | Skin designation - potential for cutaneous absorption |
| Sdv | Skin designation - vacated |
| Sk | Skin notation |

| | |
|---|---|
| dSk | Skin notation - danger of cutaneous absorption |
| pSk | Skin notation - potential for cutaneous absorption |

**Key literature references and sources for data used to compile the SDS**
U.S. Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
U.S. Environmental Protection Agency
U.S. EPA Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
U.S. Hazardous Substance Data Bank (HSDB)
International Uniform Chemical Information Database (IUCLID)
Japan National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
U.S. National Institute for Occupational Safety and Health (NIOSH)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
International Organization for Economic Co-operation and Development (OECD) Environment, Health, and Safety Publications
International Organization for Economic Co-operation and Development (OECD) High Production Volume Chemicals Program
International Organization for Economic Co-operation and Development (OECD) Screening Information Data Set
United Nations World Health Organization (WHO)

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