

1. IDENTIFICATION

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| Product Identifier | Spinel |
| Synonyms: | SPINEL SP67, SPINEL SP78, SPINEL SP90 |
| Article Number: | No other identifiers |
| CAS Number: | 1344-28-1 |
| Recommended Use: | Refractories, ceramics, glass and chemical industries, abrasives, polishing aids; use as an additive, filler, pigment. |
| Restrictions on Use: | Not known |
| Manufacturer/Supplier: | GNP Graystar Specialty Materials 37 John Glenn Dr. Amherst, NY 14228 |
| Emergency telephone number: | 716-759-6600 |

2. HAZARD(S) IDENTIFICATIONS

Classifications of the substance or mixture: Not a hazardous substance or mixture

Label Elements

GHS Label Elements: The product is NOT classified as hazardous according to OSHA Globally Harmonized System (GHS) regulations within the United States.

Hazard Pictograms: Not Regulated

Signal Word: Not Regulated

Hazard Statements: Not Regulated

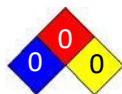
Precautionary Statements: Not Regulated

WHMIS- Symbols:

As of 11 February 2015, the current WHMIS system is being replaced by the GHS system. This is the classification under the older system.

Hazards not otherwise classified (HNOC) or not covered by GHS: None

Classification System:



NFPA Ratings (scale 0-4)

Health = 0
Fire = 0
Reactivity = 0



HMIS Ratings (scale 0-4)

Health = 0
Fire = 0
Reactivity = 0

Other Hazards:

Results of PBT and vPvB Assessment

PBT: Not applicable

vPvB: Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

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| Chemical Characterization: | Formula: MgAl ₂ O ₄ |
| CAS No. Description: | 1302-67-6 - SPINEL |
| EC-NO.: | 215-105-9 - SPINEL |
| 4. FIRST-AID MEASURES | |
| General Information: | No special measures required |
| After inhalation: | Supply fresh air, consult doctor in case of complaints. |
| After skin contact: | Brush off loose particles. Wash with soap and water. If skin irritation is experienced, consult a doctor. |
| After eye contact: | Remove contacts if possible if worn. Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor. |
| After swallowing: | Rinse out mouth and drink plenty of water. Do not induce vomiting; immediately call for medical help. |
| Most important symptoms and effects, both acute and delayed: | No symptoms are expected |
| Indication of any immediate medical attention and special treatment needed: | None |
| Danger: | None |
| 5. FIRE-FIGHTING MEASURES | |
| | Non-flammable, but in case of other fire, see below |
| Extinguishing Media: Suitable Extinguishing Agents: | The product is not combustible. Use the usual extinguishing measures (carbon dioxide (CO), dry chemical, foam; water spray). Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| For safety reasons unsuitable extinguishing agents: | Full water jet. |
| Special Hazards Arising from the Substance or Mixture: | None |
| Advice for firefighters: | Wear self-contained breathing apparatus for firefighting if necessary. |
| Additional Information: | None |
| 6. ACCIDENTAL RELEASE MEASURES | |
| Personal Precautions, Protective Equipment & Emergency Procedures: | For non-emergency personnel: Use personal protective equipment (Section 8). Emergency procedures: Ensure adequate ventilation. |
| Environmental Precautions: | No special measures required |
| Methods and Material for Containment and Cleaning Up: | Collect the product and recycle it for reuse. Take up mechanically and collect in suitable container and dispose according to current regulations. |
| Reference to other sections: | See also Sections 8 and 13. |
| 7. HANDLING AND STORAGE | |
| Precautions for Safe Handling: | Measures to prevent fire: Ensure adequate ventilation. |

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| | Measures to prevent aerosol and dust generation: Prevent dusting. Use good personal hygiene practices – wash hands at breaks and when done working with material. Do not eat, drink or smoke while working. Do not breathe dust. |
| Information about protection against explosions and fires: | No special measure required |
| Requirements to be met by storerooms and receptacles: | No special requirements |
| Further information about storage conditions: | None. |
| Specific End Use(s): | No further relevant information available. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

| <u>1302-67-6 SPINEL</u> | |
|-------------------------|---|
| PEL (USA) | term value: 15*; 5** mg/m ³ *Total dust; ** Respirable fraction |
| TLV (USA) | Long-term value: 1* mg/m ³ as Al; *as respirable fraction |
| EL (Canada) | Long-term value: 1.0 mg/m ³ respirable, as Al |
| EV (Canada) | Long-term value: 10 mg/m ³ total dust |

Additional information: the lists that were valid during the creation were used as basis.

EXPOSURE CONTROLS

Personal Protective Equipment:

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| General Protective and Hygienic Measures: | The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Wash hands before breaks and at the end of work. Avoid contact with the eyes. Avoid close or long term contact with the skin. Do not inhale dust. |
| Engineering Controls: | No further relevant information available. |
| Breathing Equipment: | Not needed under normal use and adequate ventilation. In case of insufficient ventilation wear suitable respiratory protection. Mask with dust filter (P2) or FFP2(EN 149). Wear a mask with a filter for dust/aerosols - FFP3 (EN 149). 'High/elevated concentrations' means that the occupational exposure limit values have been exceeded. |
| Skin Protection: | Wear gloves for the protection against mechanical hazards according to OSHA and NIOSH rules. Gloves are advised for repeated or prolonged contact. |
| Eye protection: | Safety glasses with side shields |



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| Control of Environment Exposure: | Avoid dust formation |
| 9. PHYSICAL AND CHEMICAL PROPERTIES | |
| Information on basic physical and chemical properties | |
| Physical State: | Solid |
| Color: | Amber |
| Odor: | Odorless |
| pH | 6.0-9.5 |
| Melting Point: | 2,135 ° C |
| Initial Boiling point | Not applicable |
| Flash Point | Not applicable |
| Density | 3.0 – 3.4 g/cm ³ |
| Solubility | Insoluble |
| Danger of explosion: | Product does not present an explosion hazard |
| 10. STABILITY AND REACTIVITY | |
| Thermal Decomposition / Conditions to be Avoided: | None under normal processing |
| Possibility of Hazardous Reactions: | None known. |
| Bio accumulative Potential: | |
| Incompatible Materials: | No further relevant information available. |
| Reactivity: | None under normal processing |
| Chemical Stability: | Stable under normal conditions |
| Hazardous Decomposition: | None known. |
| 11. TOXICOLOGICAL INFORMATION | |
| Acute toxicity: | |
| Primary irritant effect | |
| On the skin: | No information |
| On the eye: | No information |
| Chronic toxicity: | No further relevant information available |
| Additional Toxicological Information: | The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for the Preparations as issued in the latest version. When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us |
| Acute effects (acute toxicity, irritation and corrosively) | From product as supplied: None |
| Repeated Dose Toxicity: | No further relevant information available |

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| CMR Effects (carcinogenity, mutagenicity and toxicity for reproduction) | None |
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12. ECOLOGICAL INFORMATION

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| Aquatic Toxicity: | Generally, not hazardous for water. |
| Persistence and degradability: | Inorganic product, is not eliminable from water by means of biological cleaning processes. |
| Other Adverse Effects: | None known |
| Bio accumulative Potential: | Does not accumulate in organisms |
| Mobility in soil: | No information available |

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

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| Recommendation: | Smaller quantities can be disposed of with household waste. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes |
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| Contaminated Packages: | Disposal must be made according to official regulations |
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14. TRANSPORT INFORMATION

Note: Not classified as a dangerous according to transport regulations.

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| DOT, ADR, ADN, IMDG, IATA: Not Regulated UN proper shipping name | Not regulated |
| DOT, ADR, ADN, IMDG, IATA Not Regulated Transport hazard class(s) | Not regulated |
| DOT, ADR, ADN, IMDG, IATA Class | Not regulated |
| Packing group DOT, ADR, IMDG, IATA | Not regulated |

15. REGULATORY INFORMATION

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

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| Note: | Regulations apply to dust |
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United States Federal Regulations

SARA

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| Section 355 (extremely hazardous substances) | Substance is not listed |
| Section 313 (Specific toxic chemical listings): | Substance is not listed |
| TSCA (Toxic Substances Control Act): | All ingredients are listed |

Carcinogenic Categories:

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| EPA (Environmental Protection Agency): | Substance is not listed |
| IARC (International Agency for Research on Cancer): | Substance is not listed |
| TLV (Threshold Limit Value established by ACGIH): | Substance is not listed |
| NIOSH-Ca (National Institute for Occupational Safety and Health) | Substance is not listed |

Canadian Substance Listings

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| Canadian Domestic Substances List (DSL): | Substance is not listed |
| Canadian Ingredient Disclosure list (limit 0.1%): | Substance is not listed |
| Canadian Ingredient Disclosure list (limit 1%): | Substance is not listed |

16. OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Date of Preparation / Last Revision: 05/11/2020

Prepared by:

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KEY

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| ACGIH | American Conference of Governmental Industrial Hygienists |
| CAS | Chemical Abstracts Service |
| DOT | Department of Transportation |
| IARC | International Agency for Research on Cancer |
| IMDG | International Maritime Dangerous Goods |
| MSHA | Mine Safety and Health Administration |
| NFPA | National Fire Protection Association |
| NIOSH | National Institute for Occupational Safety and Health |
| NTP | National Toxicology Program |
| OSHA | Occupational Safety and Health Administration |
| PEL | Permissible Exposure Limit |
| SARA | Superfund Amendment and Reauthorization Act |
| TLV | Threshold Limit Value |
| TSCA | Toxic Substance Control Act |

Relevant Phrases

DISCLAIMER:

User is granted the ability to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. GNP Ceramics, LLC shall not be held liable for any damage resulting from handling or from contact with the above product.