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

1.1 Product identifier
Trade name: Alumina Titania
Product code: 9319, 9320, 9321, 9323, 1342, 9324, 9375, 9386, 9387, 9388, 9389, 7005, 7006, 7012, #106, #107, #108, #109, #110, #112, #117, #119

1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.
Application of the substance / the mixture: Thermal Spray Powder

1.3 Details of the supplier of the Safety Data Sheet
Manufacturer/Supplier:
Saint Gobain Coating Solutions
One New Bond Street
Worcester, MA 01615-0137
(508) 795-5000
CeramicMaterials@saint-gobain.com

1.4 Emergency telephone number:
CHEMTREC
1-800-424-9300 (US/Canada) +01 703-527-3887 (International)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
The product is not classified as hazardous according to the CLP regulation.
Classifications listed are applicable to the OSHA GHS Hazard Communication Standard (29CFR1910.1200).
Carc. 2 H351 Suspected of causing cancer. Route of exposure: Inhalation.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008
The product is not classified as hazardous according to the CLP regulation.
The product is classified and labelled according to the Globally Harmonized System within the United States.

Hazard pictograms
Not applicable within the EU; applicable only for North America.

GHS08

Signal word
Not applicable within the EU; applicable only for North America.

(Cont'd. on page 2)
Trade name: Alumina Titania

Warning
Hazard-determining components of labelling:
titanium dioxide

Hazard statements
Not applicable within the EU; applicable only for North America.
H351 Suspected of causing cancer. Route of exposure: Inhalation.

Precautionary statements
Not applicable within the EU; applicable only for North America.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves / eye protection.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards There are no other hazards not otherwise classified that have been identified.

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components:

<table>
<thead>
<tr>
<th>CAS: 1344-28-1</th>
<th>aluminium oxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>EINECS: 215-691-6</td>
<td>substance with a Community workplace exposure limit</td>
</tr>
<tr>
<td>CAS: 13463-67-7</td>
<td>titanium dioxide</td>
</tr>
<tr>
<td>EINECS: 236-675-5</td>
<td>Carc. 2, H351</td>
</tr>
</tbody>
</table>

Additional information:
For the listed ingredient(s), the identity and/or exact percentages are being withheld as a trade secret.
For the wording of the listed Hazard Statements refer to section 16.
The carcinogen classification is based on the IARC classification and not the CLP classification.

SECTION 4: First aid measures

4.1 Description of first aid measures
After inhalation: Supply fresh air; consult doctor in case of complaints.
After skin contact:
Brush off loose particles from skin.
Immediately rinse with water.
If skin irritation is experienced, consult a doctor.
After eye contact:
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
Trade name: Alumina Titania

(Cont’d. from page 2)

After swallowing:
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; call for medical help immediately.

4.2 Most important symptoms and effects, both acute and delayed
Breathing difficulty
Coughing
May cause gastro-intestinal irritation if ingested.
Hazard: Danger of impaired breathing.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents:
The product is not flammable.
Use fire extinguishing methods suitable to surrounding conditions.
For safety reasons unsuitable extinguishing agents: None.

5.2 Special hazards arising from the substance or mixture
No further relevant information available.

5.3 Advice for firefighters
Protective equipment:
Wear self-contained respiratory protective device.
Wear fully protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation
Do not breathe dust.
Wear appropriate NIOSH respirator when ventilation is inadequate and occupational exposure limits are exceeded.

6.2 Environmental precautions
Avoid release to the environment.

6.3 Methods and material for containment and cleaning up
Pick up mechanically.
Send for recovery or disposal in suitable receptacles.

6.4 Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Cont’d. on page 4)
SECTION 7: Handling and storage

7.1 Precautions for safe handling
Use only in well ventilated areas.
Prevent formation of dust.
Any unavoidable deposit of dust must be regularly removed.
Information about fire - and explosion protection: Keep respiratory protective device available.

7.2 Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: Store in a cool location.
Information about storage in one common storage facility: Store away from foodstuffs.
Further information about storage conditions: Store in dry conditions.

7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Ingredients with limit values that require monitoring at the workplace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1344-28-1 aluminium oxide</td>
</tr>
<tr>
<td>PEL (USA) Long-term value: 15*: 5** mg/m³</td>
</tr>
<tr>
<td>*Total dust;  ** Respirable fraction</td>
</tr>
<tr>
<td>REL (USA) Long-term value: 10* 5** mg/m³</td>
</tr>
<tr>
<td>as Al; *Total dust**Respirable/pyro powd./welding f.</td>
</tr>
<tr>
<td>TLV (USA) Long-term value: 1* mg/m³</td>
</tr>
<tr>
<td>as Al; *as respirable fraction</td>
</tr>
<tr>
<td>13463-67-7 titanium dioxide</td>
</tr>
<tr>
<td>PEL (USA) Long-term value: 15* mg/m³</td>
</tr>
<tr>
<td>*total dust</td>
</tr>
<tr>
<td>REL (USA) See Pocket Guide App. A</td>
</tr>
<tr>
<td>TLV (USA) Long-term value: 10 mg/m³</td>
</tr>
<tr>
<td>withdrawn from NIC</td>
</tr>
</tbody>
</table>

DNELs: No further relevant information available.
PNECs: No further relevant information available.

8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures:
The usual precautionary measures are to be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
Avoid breathing dust.
Avoid close or long term contact with the skin.
Avoid contact with the eyes.
**Trade name:** Alumina Titania

**Respiratory protection:**
For spills, respiratory protection may be advisable.
NIOSH or EU approved dust respirator should be used for operations generating dust.
Particulate mask should filter at least 99% of airborne particles.

**Protection of hands:**
Wear gloves for the protection against mechanical hazards according to NIOSH or EN 388.

**Eye protection:** Follow relevant national guidelines concerning the use of protective eyewear.

**Body protection:** Protective work clothing

**Limitation and supervision of exposure into the environment:** Avoid release to the environment.

**Risk management measures:** See Section 7 for additional information.

---

**SECTION 9: Physical and chemical properties**

### 9.1 Information on basic physical and chemical properties

**Appearance**

- **Form:** Powder
- **Colour:** Grey
- **Odour:** Characteristic
- **Odour threshold:** Not determined.

- **pH-value:** Not applicable.
- **Melting point/Melting range:** 1950 °C (3542 °F)
- **Boiling point/Boiling range:** Not determined.

- **Flash point:** Not applicable.
- **Flammability (solid, gaseous):** Not determined.
- **Auto/Self-ignition temperature:** Not determined.
- **Decomposition temperature:** Not determined.
- **Self-igniting:** Product is not self-igniting.
- **Danger of explosion:** Product does not present an explosion hazard.

**Explosion limits**

- **Lower:** Not determined.
- **Upper:** Not determined.

**Oxidising properties**
Not determined.

**Vapour pressure:**
Not determined.

**Density:**
Not determined.

**Relative density:**
Not determined.

**Vapour density:**
Not applicable.

**Evaporation rate:**
Not applicable.

**Solubility in / Miscibility with water:**
Insoluble.
SECTION 10: Stability and reactivity

10.1 Reactivity  No further relevant information available.
10.2 Chemical stability  Stable under normal temperatures and pressures.
Thermal decomposition / conditions to be avoided:
No decomposition if used and stored according to specifications.
10.3 Possibility of hazardous reactions
Reacts with strong acids and alkali.
As the product is supplied it is not capable of dust explosion; however enrichment with fine dust causes risk of dust explosion.
10.4 Conditions to avoid  Moisture.
10.5 Incompatible materials  Strong acids
10.6 Hazardous decomposition products  Toxic metal compounds

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity: Based on available data, the classification criteria are not met.
LD/LC50 values relevant for classification: None.
Primary irritant effect
Skin corrosion/irritation: Based on available data, the classification criteria are not met.
Serious eye damage/irritation: Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.

Carcinogenic categories

IARC (International Agency for Research on Cancer):
13463-67-7  titanium dioxide  2B

NTP (National Toxicology Program):
None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration):
None of the ingredients are listed.

Probable routes of exposure:
Ingestion.
Inhalation.
Eye contact.
Skin contact.
Trade name: Alumina Titania

Acute effects (acute toxicity, irritation and corrosivity): No further relevant information available.
Repeated dose toxicity:
Repeated or long-term inhalation of product dusts may cause pulmonary disease.
Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Carcinogenicity:
Based on IARC classifications and not the CLP classification.
Suspected of causing cancer. Route of exposure: Inhalation.
Reproductive toxicity: Based on available data, the classification criteria are not met.
STOT-single exposure: Based on available data, the classification criteria are not met.
STOT-repeated exposure: Based on available data, the classification criteria are not met.
Aspiration hazard: Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.
12.2 Persistence and degradability No further relevant information available.
12.3 Bioaccumulative potential No further relevant information available.
12.4 Mobility in soil No further relevant information available.
Additional ecological information:
General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
Smaller quantities can be disposed of with household waste.
Contact waste processors for recycling information.
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.
Uncleaned packaging:
Recommendation: Disposal must be made according to official regulations.
### SECTION 14: Transport information

14.1 UN-Number

| DOT, ADR, IMDG, IATA | Not Regulated |

14.2 UN proper shipping name

| DOT, ADR, IMDG, IATA | Not Regulated |

14.3 Transport hazard class(es)

| DOT, ADR, IMDG, IATA | Not Regulated |
| Class | Not Regulated |
| Label | - |

14.4 Packing group

| DOT, ADR, IMDG, IATA | Not Regulated |

14.5 Environmental hazards:

| Marine pollutant: | No |

14.6 Special precautions for user

| Not applicable. |

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

| Not applicable. |

### SECTION 15: Regulatory information

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

**United States (USA)**

**SARA**

- **Section 355 (extremely hazardous substances):** None of the ingredients are listed.
- **Section 313 (Specific toxic chemical listings):**
  - 1344-28-1 aluminium oxide
- **TSCA (Toxic Substances Control Act):** All ingredients are listed.
- **Proposition 65 (California):**
  - **Chemicals known to cause cancer:**
    - 13463-67-7 titanium dioxide
  - **Chemicals known to cause reproductive toxicity for females:** None of the ingredients are listed.
  - **Chemicals known to cause reproductive toxicity for males:** None of the ingredients are listed.
## Trade name: Alumina Titania

### Chemicals known to cause developmental toxicity:
None of the ingredients are listed.

### Carcinogenic Categories

#### EPA (Environmental Protection Agency)
None of the ingredients are listed.

#### IARC (International Agency for Research on Cancer)

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
<th>Carcinogenicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>13463-67-7</td>
<td>titanium dioxide</td>
<td>2B</td>
</tr>
</tbody>
</table>

#### NIOSH-Ca (National Institute for Occupational Safety and Health)

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>13463-67-7</td>
<td>titanium dioxide</td>
</tr>
</tbody>
</table>

### Canada

#### Canadian Domestic Substances List (DSL)
All ingredients are listed.

### Other regulations, limitations and prohibitive regulations

#### Substances of very high concern (SVHC) according to REACH, Article 57
None of the ingredients are listed.

### 15.2 Chemical safety assessment
A Chemical Safety Assessment has not been carried out.

## SECTION 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.

### Relevant phrases
H351 Suspected of causing cancer. Route of exposure: Inhalation.

### Abbreviations and acronyms:
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- DNEL: Derived No-Effect Level (REACH)
- PNEC: Predicted No-Effect Concentration (REACH)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- SVHC: Substances of Very High Concern
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health
- Carc. 2: Carcinogenicity, Hazard Category 2

### Sources
- Website, European Chemicals Agency (echa.europa.eu)
- Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)

(Cont'd. on page 10)
<table>
<thead>
<tr>
<th>Trade name: Alumina Titania</th>
</tr>
</thead>
</table>

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Safety Data Sheets, Individual Manufacturers

SDS Prepared by:
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com