1 Identification

- **Product identifier**: Glass enamel powder
- **Trade name**: 
- **Product ID#**: HONEYCOMB ORANGE ONGLAZE 94H1003
- **Product Use**: Glass enamel powder
  Preparation of ceramic parts and coatings
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier**: Johnson Matthey Inc.
  498 Acorn Lane
  Downingtown, PA 19335
  tel. 1 610 873-3200
  fax. 1 610 873-3255
- **Information department**: Product Safety Department 1 (610) 873-3200 M-F 8am-5pm
- **Emergency telephone number**: 1 856 384-7050

2 Hazard(s) identification

- **Classification of the substance or mixture**
The product is not classified according to the Globally Harmonized System (GHS).
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**: Not applicable.
- **Information concerning particular hazards for human and environment**: The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system**: The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.
- **Label elements**
  - **GHS label elements**: Void
  - **Hazard pictograms**: Void
  - **Signal word**: Void
  - **Hazard statements**: Void
  - **Hazard description**:

- **American Hazard Description**
  Based upon the components the following hazards may exist:
  Antimony, Titanium dioxide are cancer hazards

  Target Organs - Lungs, Hair

(Contd. on page 2)


40. Classification system:

- NFPA ratings (scale 0 - 4)
  - Health = 0
  - Fire = 0
  - Reactivity = 0

- HMIS ratings (scale 0 - 4)
  - Health = 0
  - Fire = 0
  - Reactivity = 0

41. Other hazards

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

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of frits and/or raw materials of natural origin and inorganic pigments in powder form

<table>
<thead>
<tr>
<th>Hazardous components:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 65997-18-4</td>
<td>frits, chemicals</td>
</tr>
<tr>
<td>EINECS: 266-047-6</td>
<td>75-100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main components:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 65997-18-4</td>
<td>frits, chemicals</td>
</tr>
<tr>
<td>EINECS: 266-047-6</td>
<td>75-100%</td>
</tr>
<tr>
<td>CAS: 68186-90-3</td>
<td>chrome-antimony-titanium buff rutile</td>
</tr>
<tr>
<td>EINECS: 269-052-1</td>
<td>10-&lt;25%</td>
</tr>
</tbody>
</table>

- SVHC

- Additional information:
  For the wording of the listed risk phrases refer to section 16.
  This product is partly or entirely the result of a melting, calcining or sintering process at high temperatures. It therefore does not necessarily exhibit the properties of the abovementioned metallic constituents. The mentioned metals are present in a complex matrix and are expressed as their oxides; it is however highly unlikely that these oxides are actually present in the product, unless explicitly specified.

4 First-aid measures

- Description of first aid measures

- General information:
  Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- After inhalation:
  If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of unconsciousness place patient stably in side position for transportation.

- After skin contact:
  Remove contaminated clothing and wash skin with soap and water. Wash or clean clothing before reuse.

- After eye contact:
  Rinse opened eye for several minutes under running water.

- After swallowing:
  If symptoms persist consult doctor.
5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents: Use fire fighting measures that suit the environment.

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

- Advice for firefighters
  - Protective equipment: Wear full firefighting gear and SCBA

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  - Wear protective equipment. Keep unprotected persons away.

- Environmental precautions:
  - Do not allow product to reach sewage system or any water course.
  - Do not allow to enter sewers/surface or ground water.

- Methods and material for containment and cleaning up: Pick up mechanically.

- 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.

7 Handling and storage

- Handling:
  - Precautions for safe handling
    - Thorough dedusting.
    - Ensure good ventilation/exhaustion at the workplace.
    - Prevent formation of dust.
    - Provide suction extractors if dust is formed.
    - Information about protection against explosions and fires: No special measures required.

- Conditions for safe storage, including any incompatibilities

- Storage:
  - Requirements to be met by storerooms and receptacles: No special requirements.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions: Keep receptacle tightly sealed.
  - Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems:
  - The application of this product requires well exhausted firing kilns and efficient ventilation of working areas.

- Control parameters

- Components with limit values that require monitoring at the workplace:
  - There is no PEL established for this mixture. Recommend monitoring based upon the components in the mixture.
65997-18-4 frits, chemicals

<table>
<thead>
<tr>
<th>CAS No. Designation of material</th>
<th>%</th>
<th>Type</th>
<th>Value Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1309-64-4 antimony compounds, n.o.s. (calculated as Sb2O3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEL Long-term value: 0.5 mg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REL Long-term value: 0.5 mg/m³ as Sb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLV Long-term value: 0.5 mg/m³ as Sb; Production: L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>chromium (III) compounds, n.o.s. (calculated as Cr2O3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEL Long-term value: 0.5 mg/m³ as Cr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REL Long-term value: 0.5 mg/m³ as Cr; See Pocket Guide App. C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLV Long-term value: 0.5 mg/m³ as Cr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>titanium compounds, n.o.s. (calculated as TiO2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEL Long-term value: 15* mg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*total dust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REL See Pocket Guide App. A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLV Long-term value: 10 mg/m³ withdrawn from NIC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Exposure controls

Personal protective equipment:

General protective and hygienic measures:
The usual precautionary measures for handling chemicals should be followed.

Breathing equipment: Not required.

Protection of hands:

Material of gloves
Nitrile rubber, NBR
Chemical resistant gloves

Eye protection: Not required.

Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Powder
Color: Orange
Odor: Odorless
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odour threshold</td>
<td>Not determined</td>
</tr>
<tr>
<td>pH-value</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Change in condition</td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range</td>
<td>Undetermined</td>
</tr>
<tr>
<td>Boiling point/Boiling range</td>
<td>Undetermined</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gaseous)</td>
<td>Not determined</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not determined</td>
</tr>
<tr>
<td>Auto igniting</td>
<td>Product is not selfigniting</td>
</tr>
<tr>
<td>Danger of explosion</td>
<td>Product does not present an explosion hazard</td>
</tr>
<tr>
<td>Explosion limits</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>Not determined</td>
</tr>
<tr>
<td>Upper</td>
<td>Not determined</td>
</tr>
<tr>
<td>Vapor pressure at 20 °C (68 °F)</td>
<td>0 hPa</td>
</tr>
<tr>
<td>Density</td>
<td>Not determined</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility in / Miscibility with Water</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not determined</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Dynamic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Kinematic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solvent content</td>
<td></td>
</tr>
<tr>
<td>Organic solvents</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Water</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Solvent (USA)</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Solids content</td>
<td>100.0 %</td>
</tr>
<tr>
<td>Other information</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

**10 Stability and reactivity**

- Reactivity
- Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.
11 Toxicological information

· Information on toxicological effects
  · Acute toxicity:
  · Primary irritant effect:
  · on the skin: No irritant effect.
  · on the eye: No irritating effect.
  · Sensitization: No sensitizing effects known.
  · Additional toxicological information:
    The product is not subject to classification according to internally approved calculation methods for preparations:
    When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· Carcinogenic categories
  · IARC (International Agency for Research on Cancer)
    68186-90-3 chrome-antimony-titanium buff rutile antimony compounds, titanium compounds
  · NTP (National Toxicology Program)
    68186-90-3 chrome-antimony-titanium buff rutile antimony compounds
  · OSHA-Ca (Occupational Safety & Health Administration)
    None of the ingredients is listed.

12 Ecological information

· Toxicity
  · Aquatic toxicity: No further relevant information available.
  · Persistence and degradability: No further relevant information available.
  · Behavior in environmental systems:
  · Bioaccumulative potential: No further relevant information available.
  · Mobility in soil: No further relevant information available.
  · Additional ecological information:
  · General notes:
    Water hazard class 2 (Self-assessment): hazardous for water
    Do not allow product to reach ground water, water course or sewage system.
    Danger to drinking water if even small quantities leak into the ground.
  · Results of PBT and vPvB assessment
    · PBT: Not applicable.
    · vPvB: Not applicable.
  · Other adverse effects: No further relevant information available.

13 Disposal considerations

· Waste treatment methods
  · Recommendation:
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· Uncleaned packagings:
  · Recommendation: Disposal must be made according to official regulations.
**14 Transport information**

- **UN-Number**
  - DOT, ADR, ADN, IMDG, IATA: Not regulated

- **UN proper shipping name**
  - DOT, ADR, ADN, IMDG, IATA: Not regulated

- **Transport hazard class(es)**
  - DOT, ADR, ADN, IMDG, IATA: Not regulated

- **Packing group**
  - DOT, ADR, ADN, IMDG, IATA: Not regulated

- **Environmental hazards:**
  - Marine pollutant: No

- **Special precautions for user**
  - Not applicable.

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - Not applicable.

- **Transport/Additional information:**
  - Not dangerous according to the above specifications.

- **DOT**
  - Remarks: Not regulated

- **ADR**
  - Remarks: Not regulated

- **ADN**
  - Remarks: Not regulated

- **IMDG**
  - Remarks: Not regulated

- **IATA**
  - Remarks: Not regulated

**15 Regulatory information**

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

  - **Section 355 (extremely hazardous substances):**
    - None of the ingredients is listed.

  - **Section 313 (Specific toxic chemical listings):**
    - 68186-90-3 | chrome-antimony-titanium buff rutile | antimony compounds, chromium compounds

  - **TSCA (Toxic Substances Control Act):**
    - All ingredients are listed.

  - **Proposition 65**

    - **Warning:** This product contains a chemical known to the State of California to cause cancer
      - 68186-90-3 | chrome-antimony-titanium buff rutile | antimony compounds
### Safety Data Sheet

**Product ID#:** HONEYCOMB ORANGE ONGLAZE 94H1003

**Warning:** This product contains a chemical known to the State of California to cause female reproductive hazards.  
None of the ingredients is listed.

**Warning:** This product contains a chemical known to the State of California to cause male reproductive hazards.  
None of the ingredients is listed.

**Warning:** This product contains a chemical known to the State of California to cause development toxicity.  
None of the ingredients is listed.

#### Canadian Ingredient disclosure list

- **Limit 0,1%**  
  None of the ingredients is listed.

- **Limit 1%**  
  None of the ingredients is listed.

#### Cancerogenity categories

- **EPA (Environmental Protection Agency)**  
  None of the ingredients is listed.

- **TLV (Threshold Limit Value established by ACGIH)**  
  None of the ingredients is listed.

- **MAK (German Maximum Workplace Concentration)**  
  None of the ingredients is listed.

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**  
  None of the ingredients is listed.

#### National regulations:

The product is subject to be labeled according with the prevailing version of the regulations on hazardous substances.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 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.

**Contact:**  
J. Rose  
EHS Specialist

**Date of preparation / last revision** 04/10/2015 / 5

**Abbreviations and acronyms:**

- RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
- ICAO: International Civil Aviation Organisation
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (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
- ACGIH: American Conference of Governmental Industrial Hygienists
- 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)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
Product ID#: HONEYCOMB ORANGE ONGLAZE 94H1003

VOC: Volatile Organic Compounds (USA, EU)

* Data compared to the previous version altered.