SAFETY DATA SHEET


Revision date: 10 April 2018
Initial date of issue: 5 September 2007
SDS No. 1091-10

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier
1600, 1600SP

1.2. Relevant identified uses of the substance or mixture and uses advised against
A general service emissions and steam service packing for use in all control and block valve services to 650°C (1200°F) and 8400 psi (580 Bar).

1.3. Details of the supplier of the safety data sheet
Company: A.W. CHESTERTON COMPANY
860 Salem Street
Groveland, MA 01834-1507, USA
Tel. +1 978-469-6446    Fax: +1 978-469-6785
(Mon. - Fri. 8:30 - 5:00 PM EST)
SDS requests: www.chesterton.com
E-mail (SDS questions): ProductMSDSs@chesterton.com
E-mail: customer.service@chesterton.com

Canada: A.W. Chesterton Company Ltd., 889 Fraser Drive,
Unit 105, Burlington, Ontario L7L 4X8 – Tel. 905-335-5055
EU: Chesterton International GmbH, Am Lenzenfleck 23,
D85737 Ismaning, Germany – Tel. +49-89-996-5460

Supplier:

1.4. Emergency telephone number
24 hours per day, 7 days per week
Call Infotrac: 1-800-535-5053
Outside N. America: +1 352-323-3500 (collect)
NSW Poisons Information Centre (Australia): 13 11 26

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture
This product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, 29 CFR 1910.1200, WHMIS 2015 and GHS.

2.1.2. Australian statement of hazardous nature
Not classified as hazardous according to criteria of Safe Work Australia.

2.1.3. Additional information
None

2.2. Label elements


Hazard pictograms: None
Signal word: None
Hazard statements: None
Precautionary statements: None
Supplemental information: None
2.3. Other hazards
None expected in industrial use. PTFE is nonhazardous at ambient temperatures. At temperatures above 260°C (500°F), toxic decomposition products may be emitted. Due to toxic decomposition, avoid smoking (wash hands to avoid transfer to tobacco products) when handling PTFE products.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

<table>
<thead>
<tr>
<th>Hazardous Ingredients¹</th>
<th>% Wt.</th>
<th>CAS No./EC No.</th>
<th>REACH Reg. No.</th>
<th>CLP/GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite</td>
<td>70-80</td>
<td>7782-42-5</td>
<td>NA</td>
<td>Not classified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>231-955-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silica (Quartz)</td>
<td>&lt; 1</td>
<td>14808-60-7</td>
<td>NA</td>
<td>Not classified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>238-878-4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For full text of H-statements: see SECTION 16.


SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures
Inhalation: If overcome by decomposition fumes, remove to fresh air. If not breathing, administer artificial respiration. Contact physician.
Skin contact: Wash skin with soap and water. Contact physician if irritation persists.
Eye contact: Flush eyes for at least 15 minutes with large amounts of water. Contact physician if irritation persists.
Ingestion: Not applicable
Protection of first-aiders: No special precautions.

4.2. Most important symptoms and effects, both acute and delayed
Graphite dust may cause mechanical irritation to the skin, eyes and nasal passages. Repeated inhalation of nuisance dust in excess of exposure limits over an extended period of time may result in injury to the lungs. Symptoms can include cough, shortness of breath and decrease in pulmonary function.

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptoms.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media
Suitable extinguishing media: Carbon dioxide, dry chemical, foam or water spray
Unsuitable extinguishing media: None known

5.2. Special hazards arising from the substance or mixture
Toxic fumes may be emitted at temperatures above 260°C (500°F). See section 10.6 for additional information.

5.3. Advice for firefighters
Recommend Firefighters wear self-contained breathing apparatus.

Flammability Classification: –
HAZCHEM Emergency Action Code: 2 Z

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Utilize exposure controls and personal protection as specified in Section 8.

6.2. Environmental Precautions
No special requirements.
6.3. Methods and material for containment and cleaning up
No special steps required. Nontoxic.

6.4. Reference to other sections
Refer to section 13 for disposal advice.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling
Accumulations of graphite may cause shorting of electrical circuits. Do not smoke when handling PTFE products; wash hands after handling to avoid transfer to tobacco products. Avoid creating and breathing dust during removal, drilling, grinding, sawing or sanding.

7.2. Conditions for safe storage, including any incompatibilities
Store in cool, dry area. Exposure to heat, humidity, ozone or light may shorten its unlimited shelf life.

7.3. Specific end use(s)
No special precautions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters
Occupational exposure limit values

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>OSHA PEL¹ ppm</th>
<th>ACGIH TLV² ppm</th>
<th>UK WEL³ ppm</th>
<th>AUSTRALIA ES⁴ ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite</td>
<td>15 mppcf</td>
<td>(resp.)</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Silica (Quartz)</td>
<td>(resp.)</td>
<td>0.05 (total)</td>
<td>0.025</td>
<td>0.1 (resp.)</td>
</tr>
</tbody>
</table>

¹ United States Occupational Health & Safety Administration permissible exposure limits
² American Conference of Governmental Industrial Hygienists threshold limit values
³ EH40 Workplace exposure limits, Health & Safety Executive
⁴ Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003]

Derived No Effect Level (DNEL) according to Regulation (EC) No 1907/2006:
Workers
Not available

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No 1907/2006:
Not available

8.2. Exposure controls

8.2.1. Engineering measures
If using under extreme heat, use local exhaust.

8.2.2. Individual protection measures
Respiratory protection: Not normally needed. If exposure limits are exceeded, use an approved dust respirator (e.g., EN filter type P2).
Protective gloves: Not normally needed.
Eye and face protection: Recommend safety glasses.
Other: None
8.2.3. Environmental exposure controls
Refer to sections 6 and 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>solid</td>
</tr>
<tr>
<td>Odour</td>
<td>odorless</td>
</tr>
<tr>
<td>Colour</td>
<td>gray</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>not determined</td>
</tr>
<tr>
<td>Initial boiling point</td>
<td>not applicable</td>
</tr>
<tr>
<td>Vapour pressure @ 20°C</td>
<td>not applicable</td>
</tr>
<tr>
<td>Melting point</td>
<td>1371°C (2550°F)</td>
</tr>
<tr>
<td>% Aromatics by weight</td>
<td>not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>not applicable</td>
</tr>
<tr>
<td>Method</td>
<td>not applicable</td>
</tr>
<tr>
<td>Weight per volume</td>
<td>not applicable</td>
</tr>
<tr>
<td>Melting point</td>
<td>1371°C (2550°F)</td>
</tr>
<tr>
<td>% Volatile (by volume)</td>
<td>not applicable</td>
</tr>
<tr>
<td>Relative density</td>
<td>not determined</td>
</tr>
<tr>
<td>Flash point</td>
<td>not applicable</td>
</tr>
<tr>
<td>% Aromatics by weight</td>
<td>not applicable</td>
</tr>
<tr>
<td>Method</td>
<td>not applicable</td>
</tr>
<tr>
<td>Weight per volume</td>
<td>not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>not applicable</td>
</tr>
<tr>
<td>Coefficient (water/oil)</td>
<td>not applicable</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>not determined</td>
</tr>
<tr>
<td>Vapour density (air=1)</td>
<td>not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>not determined</td>
</tr>
<tr>
<td>Rate of evaporation (ether=1)</td>
<td>not applicable</td>
</tr>
<tr>
<td>Upper/lower flammability or</td>
<td>not applicable</td>
</tr>
<tr>
<td>explosive limits</td>
<td>not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

9.2. Other information
None

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity
Refer to sections 10.3 and 10.5.

10.2. Chemical stability
Stable

10.3. Possibility of hazardous reactions
No dangerous reactions known under conditions of normal use.

10.4. Conditions to avoid
Extreme heat above 260°C (500°F).

10.5. Incompatible materials
Fluorine, Chlorine Trifluoride and related compounds and molten alkali metals.

10.6. Hazardous decomposition products
Carbon Monoxide, Carbon Dioxide, trace amounts of Hydrogen Fluoride, Carbonyl Fluoride, Perfluorocarbon olefins and other toxic fumes may be evolved above 260°C (500°F).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Primary route of exposure under normal use: Inhalation, skin and eye contact. Personnel with pre-existing chronic respiratory impairments are generally aggravated by exposure.

Acute toxicity -

Oral:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite</td>
<td>LD50, rat</td>
<td>&gt; 2000 mg/kg</td>
</tr>
</tbody>
</table>

Dermal: Based on available data on components, the classification criteria are not met.

Inhalation: Graphite dust may cause mechanical irritation of the nasal passages.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite</td>
<td>LC50, rat, 4 hours</td>
<td>&gt; 2 mg/l (dust)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Based on available data on components, the classification criteria are not met. Graphite dust may cause mechanical irritation to the skin.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite</td>
<td>Skin irritation, rabbit</td>
<td>Not irritating</td>
</tr>
</tbody>
</table>
**Product:** 1600, 1600SP

**Date:** 10 April 2018

**Serious eye damage/irritation:**
- **Graphite**
  - Eye irritation, rabbit
  - Not irritating

**Respiratory or skin sensitisation:**
- **Graphite**
  - Skin sensitization, mouse
  - Not sensitizing

**Germ cell mutagenicity:**
- Graphite: based on available data, the classification criteria are not met.

**Carcinogenicity:**
- The International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) have classified inhaled silica as a human carcinogen.

**Reproductive toxicity:**
- Graphite: based on available data, the classification criteria are not met.

**STOT – single exposure:**
- Not expected to cause toxicity. Graphite: based on available data, the classification criteria are not met.

**STOT – repeated exposure:**
- Repeated inhalation of respirable free silica may cause scarring of the lungs with cough and shortness of breath. Silicosis, a delayed lung injury that is a disabling, progressive and sometimes fatal pulmonary fibrosis, may result. Graphite: based on available data, the classification criteria are not met.

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

**Other information:**
- None

**SECTION 12: ECOLOGICAL INFORMATION**

Ecotoxicological data have not been determined specifically for this product. The information given below is based on a knowledge of the components and the ecotoxicology of similar substances.

**12.1. Toxicity**

This product is expected to exhibit low toxicity to aquatic and soil organisms. Graphite: 96 h LC50 (fish) > 100 mg/l.

**12.2. Persistence and degradability**

Graphite, Silica: inorganic substances, exist in nature. PTFE: material is chemically unreactive and nonbiodegradable.

**12.3. Bioaccumulative potential**

Graphite: bioconcentration in aquatic organisms is not expected to be significant.

**12.4. Mobility in soil**

Solid. Insoluble in water. In determining environmental mobility, consider the product's physical and chemical properties (see Section 9).

**12.5. Results of PBT and vPvB assessment**

Not available

**12.6. Other adverse effects**

None known

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1. Waste treatment methods**

Unused product is not a regulated waste. Check local, state and national/federal regulations and comply with the most stringent requirement. This product is not classified as a hazardous waste according to 2008/98/EC.

**SECTION 14: TRANSPORT INFORMATION**

**14.1. UN number**

- **ADR/RID/ADN/IMDG/ICAO:** NOT APPLICABLE
- **TDG:** NOT APPLICABLE
- **US DOT:** NOT APPLICABLE

**14.2. UN proper shipping name**

- **ADR/RID/ADN/IMDG/ICAO:** NON-HAZARDOUS, NON REGULATED
- **TDG:** NON-HAZARDOUS, NON REGULATED
- **US DOT:** NON-HAZARDOUS, NON REGULATED

**14.3. Transport hazard class(es)**

- **ADR/RID/ADN/IMDG/ICAO:** NOT APPLICABLE
- **TDG:** NOT APPLICABLE
- **US DOT:** NOT APPLICABLE
### 14.4. Packing group

<table>
<thead>
<tr>
<th>ADR/RID/ADN/IMDG/ICAO:</th>
<th>NOT APPLICABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDG:</td>
<td>NOT APPLICABLE</td>
</tr>
<tr>
<td>US DOT:</td>
<td>NOT APPLICABLE</td>
</tr>
</tbody>
</table>

### 14.5. Environmental hazards

NOT APPLICABLE

### 14.6. Special precautions for user

NOT APPLICABLE

### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

NOT APPLICABLE

### 14.8. Other information

NOT APPLICABLE

### SECTION 15: REGULATORY INFORMATION

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

**15.1.1. EU regulations**

- **Authorisations under Title VII:** Not applicable
- **Restrictions under Title VIII:** None
- **Other EU regulations:** None

**15.1.2. National regulations**

**US EPA SARA TITLE III**

<table>
<thead>
<tr>
<th>312 Hazards:</th>
<th>313 Chemicals:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

**Other national regulations:** None

**15.2. Chemical safety assessment**

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.
### SECTION 16: OTHER INFORMATION

**Abbreviations and acronyms:**
- ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- ATE: Acute Toxicity Estimate
- BCF: Bioconcentration Factor
- cATpE: Converted Acute Toxicity point Estimate
- CLP: Classification Labelling Packaging Regulation (1272/2008/EC)
- ES: Exposure Standard
- GHS: Globally Harmonized System
- ICAO: International Civil Aviation Organization
- IMDG: International Maritime Dangerous Goods
- LC50: Lethal Concentration to 50 % of a test population
- LD50: Lethal Dose to 50% of a test population
- LOEL: Lowest Observed Effect Level
- N/A: Not Applicable
- NA: Not Available
- NOEC: No Observed Effect Concentration
- NOEL: No Observed Effect Level
- OECD: Organization for Economic Co-operation and Development
- PBT: Persistent, Bioaccumulative and Toxic substance
- (Q)SAR: Quantitative Structure-Activity Relationship
- REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (1907/2006/EC)
- REL: Recommended Exposure Limit
- RID: Regulations concerning the International Carriage of Dangerous Goods by Rail
- SDS: Safety Data Sheet
- STEL: Short Term Exposure Limit
- STOT RE: Specific Target Organ Toxicity, Repeated Exposure
- STOT SE: Specific Target Organ Toxicity, Single Exposure
- TDG: Transportation of Dangerous Goods (Canada)
- TWA: Time Weighted Average
- US DOT: United States Department of Transportation
- vPvB: very Persistent and very Bioaccumulative substance
- WEL: Workplace Exposure Limit
- WHMIS: Workplace Hazardous Materials Information System
- Other abbreviations and acronyms can be looked up at www.wikipedia.org.

**Key literature references and sources for data:**
- Commission des normes, de l'équité, de la santé et de la sécurité du travail (CENESSST)
- Chemical Classification and Information Database (CCID)
- European Chemicals Agency (ECHA) - Information on Chemicals
- Hazardous Chemical Information System (HCIS)
- National Institute of Technology and Evaluation (NITE)
- Swedish Chemicals Agency (KEMI)
- U.S. National Library of Medicine Toxicology Data Network (TOXNET)

**Procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008 [CLP] / GHS:**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Classification procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**Relevant H-statements:** None

**Hazard pictogram names:** Not applicable

**Changes to the SDS in this revision:** Sections 1.3, 1.4, 2.1, 2.2, 3, 4.1, 5.2, 5.3, 8.1, 9.1, 10.6, 11, 15.1.2, 16.

**Date of last revision:** 10 April 2018

**Further information:** None

This information is based solely on data provided by suppliers of the materials used, not on the mixture itself. No warranty is expressed or implied regarding the suitability of the product for the user’s particular purpose. The user must make their own determination as to suitability.