1. Identification of the Substance/Mixture and the Company/Undertaking

1.1 Product Identifier

Product Name: THERMALINE HEAT SHIELD PART A

Revision Date: 06/04/2019

Supercedes Date: 03/04/2016

1.2 Relevant identified uses of the substance or mixture and uses advised against

Component of multicomponent industrial coatings - Industrial use.

1.3 Details of the supplier of the safety data sheet

Manufacturer: Carboline Company
2150 Schuetz Road
St. Louis, MO USA 63146

Regulatory / Technical Information:
Contact Carboline Technical Services at 1-800-848-4645

Datasheet Produced by: Schlereth, Ken - ehs@stoncor.com

1.4 Emergency telephone number:
CHEMTREC 1-800-424-9300 (Inside US)
CHEMTREC +1 703 5273887 (Outside US)
HEALTH - Pittsburgh Poison Control 1-412-681-6669

2. Hazard Identification

2.1 Classification of the substance or mixture

Acute Toxicity, Inhalation, category 4
Aspiration Hazard, category 1
Carcinogenicity, category 2
Flammable Liquid, category 3
Skin Irritation, category 2
2.2 Label elements

Symbol(s) of Product

Signal Word
Danger

Named Chemicals on Label
ORTHO-XYLENE, ETHYL BENZENE, PARA-XYLENE, META-XYLENE, METHYL N-AMYL KETONE, AROMATIC HYDROCARBON

HAZARD STATEMENTS

- Flammable Liquid, category 3 (H226): Flammable liquid and vapour.
- May be fatal if swallowed and enters airways. (H304)
- Causes skin irritation. (H315)
- Harmful if inhaled. (H332)
- Suspected of causing cancer. (H351)

PRECAUTION PHRASES

- Keep away from heat/sparks/open flames/hot surfaces. - No smoking. (P210)
- Avoid breathing dust/fume/gas/mist/vapours/spray. (P261)
- Wear protective gloves/protective clothing/eye protection/face protection. (P280)
- Wear respiratory protection. (P284)
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. (P301+310)
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. (P304+340)
- IF exposed or concerned: Get medical advice/attention (P308+313)
- Do NOT induce vomiting. (P331)
- If skin irritation occurs: Get medical advice/attention. (P332+313)
- Store in a well-ventilated place. Keep container tightly closed. (P403+233)

2.3 Other hazards
No Information

Results of PBT and vPvB assessment:
The product does not meet the criteria for PBT/VPvB in accordance with Annex XIII.

3. Composition/Information On Ingredients

3.2 Mixtures

Hazardous Ingredients

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Chemical Name</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-38-3</td>
<td>META-XYLENE</td>
<td>2.5 - &lt;10</td>
</tr>
<tr>
<td>100-41-4</td>
<td>ETHYL BENZENE</td>
<td>2.5 - &lt;10</td>
</tr>
<tr>
<td>7429-90-5</td>
<td>ALUMINUM (DUST OR FUME)</td>
<td>2.5 - &lt;10</td>
</tr>
<tr>
<td>106-42-3</td>
<td>PARA-XYLENE</td>
<td>2.5 - &lt;10</td>
</tr>
<tr>
<td>95-47-6</td>
<td>ORTHO-XYLENE</td>
<td>2.5 - &lt;10</td>
</tr>
<tr>
<td>64742-94-5</td>
<td>AROMATIC HYDROCARBON</td>
<td>1.0 - &lt;2.5</td>
</tr>
<tr>
<td>110-43-0</td>
<td>METHYL N-AMYL KETONE</td>
<td>1.0 - &lt;2.5</td>
</tr>
<tr>
<td>108-88-3</td>
<td>TOLUENE</td>
<td>0.1 - &lt;1.0</td>
</tr>
</tbody>
</table>
4. First-aid Measures

4.1 Description of First Aid Measures

AFTER INHALATION: Give oxygen or artificial respiration if needed. Remove person to fresh air. If signs/symptoms continue, get medical attention.

AFTER SKIN CONTACT: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If skin irritation persists, call a physician.

AFTER EYE CONTACT: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

AFTER INGESTION: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If swallowed, call a poison control centre or doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed

Harmful if swallowed. Irritating to eyes and skin. Risk of serious damage to the lungs (by aspiration). Vapours may cause drowsiness and dizziness.

4.3 Indication of any immediate medical attention and special treatment needed

No information available on clinical testing and medical monitoring. Specific toxicological information on substances, if available, can be found in section 11. When symptoms persist or in all cases of doubt seek medical advice.

5. Fire-fighting Measures

5.1 Extinguishing Media:

Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Flammable liquid. Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. Vapors may travel to areas away from work site before igniting/flashign back to vapor source. Provide adequate ventilation. Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limits. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Electrical installations / working materials must comply with the technological safety standards. Wear shoes with conductive soles.

5.2 Special hazards arising from the substance or mixture

No Information

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus. Cool containers / tanks with water spray. Flammable.

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Evacuate personnel to safe areas. Remove all sources of ignition. To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded. Wear personal protective equipment. For personal protection see section 8.
6.2 Environmental precautions

Do not allow material to contaminate ground water system. Prevent product from entering drains.

6.3 Methods and material for containment and cleaning up

Prevent further leakage or spillage if safe to do so. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

Please refer to disposal requirements or country specific disposal requirements for this material. See Section 13 for further information.

7. Handling and Storage

7.1 Precautions for safe handling

INSTRUCTIONS FOR SAFE HANDLING: Keep containers dry and tightly closed to avoid moisture absorption and contamination. Prepare the working solution as given on the label(s) and/or the user instructions. Do not breathe vapours or spray mist. Ensure all equipment is electrically grounded before beginning transfer operations. Do not use sparking tools. Do not get in eyes, on skin, or on clothing. Use only with adequate ventilation/personal protection. Wash thoroughly after handling.

PROTECTION AND HYGIENE MEASURES: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. When using, do not eat, drink or smoke.

7.2 Conditions for safe storage, including any incompatibilities

CONDITIONS TO AVOID: Heat, flames and sparks.

STORAGE CONDITIONS: Keep container closed when not in use. Store in a dry, well ventilated place away from sources of heat, ignition and direct sunlight.

7.3 Specific end use(s)

No specific advice for end use available.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Ingredients with Occupational Exposure Limits

(US)

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS-No.</th>
<th>ACGIH TWA</th>
<th>ACGIH STEL</th>
<th>ACGIH Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>META-XYLENE</td>
<td>108-38-3</td>
<td>100 PPM</td>
<td>150 PPM</td>
<td>N/E</td>
</tr>
<tr>
<td>ETHYL BENZENE</td>
<td>100-41-4</td>
<td>20 PPM</td>
<td>125 ppm</td>
<td></td>
</tr>
<tr>
<td>ALUMINUM (DUST OR FUME)</td>
<td>7429-90-5</td>
<td>1 MGM3</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>PARA-XYLENE</td>
<td>106-42-3</td>
<td>100 PPM</td>
<td>150 PPM</td>
<td>N/E</td>
</tr>
<tr>
<td>ORTHO-XYLENE</td>
<td>95-47-6</td>
<td>100 PPM</td>
<td>150 PPM</td>
<td>N/E</td>
</tr>
<tr>
<td>AROMATIC HYDROCARBON</td>
<td>64742-94-5</td>
<td>300.0 PPM</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>METHYL N-AMYL KETONE</td>
<td>110-43-0</td>
<td>50 PPM</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>TOLUENE</td>
<td>108-88-3</td>
<td>20 PPM</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>NAPHTHALENE</td>
<td>91-20-3</td>
<td>10 PPM</td>
<td>15 ppm</td>
<td>N/E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS-No.</th>
<th>OSHA PEL</th>
<th>OSHA STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>META-XYLENE</td>
<td>108-38-3</td>
<td>100.00 PPM</td>
<td>N/E</td>
</tr>
<tr>
<td>ETHYL BENZENE</td>
<td>100-41-4</td>
<td>435 MGM3, 100 545 MGM3, 125 PPM</td>
<td>N/E</td>
</tr>
</tbody>
</table>

Page 4 / 10
ALUMINUM (DUST OR FUME) 7429-90-5 15 mg/m3 N/E
PARA-XYLENE 106-42-3 100.00 PPM N/E
ORTHO-XYLENE 95-47-6 100.00 PPM N/E
AROMATIC HYDROCARBON 64742-94-5 500.0 PPM N/E
METHYL N-AMYL KETONE 110-43-0 465 MGM3, 100 PPM N/E
TOLUENE 108-88-3 200 ppm 560 MGM3, 150 PPM
NAPHTHALENE 91-20-3 50 MGM3, 10 PPM 75 MGM3, 15 PPM

FURTHER INFORMATION: Refer to the regulatory exposure limits for the workforce enforced in each country.

8.2 Exposure controls

Personal Protection

RESPIRATORY PROTECTION: In order to avoid inhalation of spray-mist and sanding dust, all spraying and sanding must be done wearing adequate respirator. Use only with ventilation to keep levels below exposure guidelines reported in this document. User should test and monitor exposure levels to ensure all personnel are below guidelines. If not sure, or not able to monitor, use State or federally approved supplied air respirator. For silica containing coatings in a liquid state, and/or if no exposure limits are established above, air-supplied respirators are generally not required.

EYE PROTECTION: Ensure that eyewash stations and safety showers are close to the workstation location. Safety glasses with side-shields.

HAND PROTECTION: Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Impervious gloves. Request information on glove permeation properties from the glove supplier. Lightweight protective clothing

OTHER PROTECTIVE EQUIPMENT: No Information

ENGINEERING CONTROLS: Avoid contact with skin, eyes and clothing. Ensure adequate ventilation, especially in confined areas.

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>Appearance</td>
<td>Grey Liquid, Low Viscosity</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Aromatic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>N/D</td>
</tr>
<tr>
<td>pH</td>
<td>N/D</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>N/D</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>149 F (65 C) - 424 F (218 C)</td>
</tr>
<tr>
<td>Flash Point</td>
<td>80F (27C)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Slower Than Ether</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not determined</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>0.9 - 36.0</td>
</tr>
</tbody>
</table>
Vapour Pressure, mmHg  
Vapour density  
Relative density  
Solubility in / Miscibility with water  
Partition coefficient: n-octanol/water  
Auto-ignition temperature (°C)  
Decomposition temperature (°C)  
Viscosity  
Explosive properties  
Oxidising properties  

9.2 Other information

VOC Content g/l: 408
Specific Gravity (g/cm3) 1.523

10. Stability and Reactivity

10.1 Reactivity
No reactivity hazards known under normal storage and use conditions.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Hazardous polymerisation does not occur.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents.

10.6 Hazardous decomposition products
Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke.
11. Toxicological Information

11.1 Information on toxicological effects

Acute Toxicity:

Oral LD50: N/D
Inhalation LC50: N/D

Irritation: Skin Irritation, category 2

Corrosivity: Unknown

Sensitization: Unknown

Repeated dose toxicity: Unknown

Carcinogenicity: Carcinogenicity, category 2

Mutagenicity: Unknown

Toxicity for reproduction: Unknown

STOT-single exposure: Unknown

STOT-repeated exposure: Unknown

Aspiration hazard: Aspiration Hazard, category 1

If no information is available above under Acute Toxicity then the acute effects of this product have not been tested. Data on individual components are tabulated below:

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Vapor LC50</th>
<th>Gas LC50</th>
<th>Dust/Mist LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-38-3</td>
<td>META-XYLENE</td>
<td>Not Available</td>
<td>Not Available</td>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>100-41-4</td>
<td>ETHYL BENZENE</td>
<td>3500 mg/kg, rat, oral</td>
<td>&gt;5000 mg/l, dermal rabbit</td>
<td>17.2 mg/L, Inh, Rat, 4Hr</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>7429-90-5</td>
<td>ALUMINUM (DUST OR FUME)</td>
<td>5001 mg/kg, oral, rat</td>
<td>Not Available</td>
<td>888 mg/m3, Inh, Rat</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>106-42-3</td>
<td>PARA-XYLENE</td>
<td>Not Available</td>
<td>Not Available</td>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>95-47-6</td>
<td>ORTHO-XYLENE</td>
<td>Not Available</td>
<td>Not Available</td>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>64742-94-5</td>
<td>AROMATIC HYDROCARBON</td>
<td>Not Available</td>
<td>Not Available</td>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>110-43-0</td>
<td>METHYL N-AMYL KETONE</td>
<td>1670 mg/kg, rat oral</td>
<td>Not Available</td>
<td>2000 ppm, 4 hours</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>108-88-3</td>
<td>TOLUENE</td>
<td>5000 mg/kg, rat oral</td>
<td>12267 mg/kg, dermal, rabbit</td>
<td>8000 ppm/4 hrs, rat, inhalation</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>91-20-3</td>
<td>NAPHTHALENE</td>
<td>Not Available</td>
<td>Not Available</td>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Additional Information:

This product may contain Ethyl Benzene, which is listed by IARC as possibly carcinogenic to humans (Group 2B). This listing is based on inadequate evidence of carcinogenicity in humans and sufficient evidence in experimental animals.
12. Ecological Information

12.1 Toxicity:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EC50 48hr</th>
<th>IC50 72hr</th>
<th>LC50 96hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>META-XYLENE</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>ETHYL BENZENE</td>
<td>1.8 mg/l (Daphnia Magna)</td>
<td>4.6 mg/l (Green Algae)</td>
<td>4.2 mg/l (Rainbow Trout)</td>
</tr>
<tr>
<td>ALUMINUM (DUST OR FUME)</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>PARA-XYLENE</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>ORTHO-XYLENE</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>AROMATIC HYDROCARBON</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>METHYL N-AMYL KETONE</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>TOLUENE</td>
<td>6 mg/l (Daphnia magna)</td>
<td>12.5 mg/L (Algae)</td>
<td>5.8 mg/L (Fish)</td>
</tr>
<tr>
<td>NAPHTHALENE</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability: Unknown

12.3 Bioaccumulative potential: Unknown

12.4 Mobility in soil: Unknown

12.5 Results of PBT and vPvB assessment:

The product does not meet the criteria for PBT/VPvB in accordance with Annex XIII.

12.6 Other adverse effects: Unknown

13. Disposal Considerations

13.1 WASTE TREATMENT METHODS: Do not burn, or use a cutting torch on, the empty drum. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of in accordance with local regulations. Empty containers should be taken to an approved waste handling site for recycling or disposal.
14. Transport Information

14.1 UN number
UN1263

14.2 UN proper shipping name
Paint

14.3 Transport hazard class(es)
3

14.4 Packing group
III

14.5 Environmental hazards
Unknown

14.6 Special precautions for user
Unknown

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code
Unknown

15. Regulatory Information

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

U.S. Federal Regulations: As follows -

CERCLA - Sara Hazard Category

This product has been reviewed according to the EPA ‘Hazard Categories’ promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

- Flammable (gases, aerosols, liquids, or solids), Carcinogenicity, Acute Toxicity (any route of exposure), Skin Corrosion or Irritation, Aspiration Hazard

Sara Section 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>META-XYLENE</td>
<td>108-38-3</td>
</tr>
<tr>
<td>ETHYL BENZENE</td>
<td>100-41-4</td>
</tr>
<tr>
<td>ALUMINUM (DUST OR FUME)</td>
<td>7429-90-5</td>
</tr>
<tr>
<td>PARA-XYLENE</td>
<td>106-42-3</td>
</tr>
<tr>
<td>ORTHO-XYLENE</td>
<td>95-47-6</td>
</tr>
<tr>
<td>TOLUENE</td>
<td>108-88-3</td>
</tr>
<tr>
<td>NAPHTHALENE</td>
<td>91-20-3</td>
</tr>
</tbody>
</table>

Toxic Substances Control Act:

All components of this product are either listed on the TSCA Inventory or are exempt.

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(B) if exported from the United States:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No TSCA 12(b) components exist in this product.</td>
<td></td>
</tr>
</tbody>
</table>

U.S. State Regulations: As follows -

New Jersey Right-to-Know:

The following materials are non-hazardous, but are among the top five components in this product.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILICONE RESIN</td>
<td>TRADE SECRET</td>
</tr>
<tr>
<td>HEMATITE</td>
<td>1317-60-8</td>
</tr>
<tr>
<td>NEPHELINE SYENITE</td>
<td>37244-96-5</td>
</tr>
</tbody>
</table>
Pennsylvania Right-To-Know

The following non-hazardous ingredients are present in the product at greater than 3%.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILICONE RESIN</td>
<td>TRADE SECRET</td>
</tr>
<tr>
<td>HEMATITE</td>
<td>1317-60-8</td>
</tr>
<tr>
<td>NEPHELINE SYENITE</td>
<td>37244-96-5</td>
</tr>
<tr>
<td>ANHYDROUS ALUMINUM SILICATE</td>
<td>66402-68-4</td>
</tr>
<tr>
<td>COPPER CHROMITE BLACK</td>
<td>68186-91-4</td>
</tr>
</tbody>
</table>

CALIFORNIA PROPOSITION 65

WARNING: Cancer and Reproductive Harm -- www.P65Warnings.ca.gov

International Regulations: As follows -

* Canadian DSL:

All chemical ingredients included on inventory (DSL)

15.2 Chemical Safety Assessment:

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

16. Other Information

Text for GHS Hazard Statements shown in Section 3 describing each ingredient:

H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H261 In contact with water releases flammable gas.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.
H371 May cause damage to organs.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

Reasons for revision

No Information

The information contained herein is, to the best of our knowledge and belief accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations.