1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY

Products governed by this MSDS: PCNM02-###-XYL, PCNM03-###-XYL, PCNM04-###-XYL-Part 1, PCNM16-###-XYL, PCNM17-###-XYL Part 1, PCNM19A-###-XYL-Part 1, PCNM20-###-XYL-Part 1, PCNM23-###-XYL, PCNM27-###-XYL-Part 1, PCNM27A-###-XYL-Part 1, PCNM30-###-XYL, PCNM37-###-XYL, PCNM44-###-XYL, PCNM51-###-XYL, PCNM58-###-XYL-Part 1, PCSM03-###-XYL, PCSM04-###-XYL-Part 1, PCNM64-###-XYL-Part 1, SM02-###-XYL, SM03-###-XYL, SM23-###-XYL. Where “#” and “##” are any alpha numeric combination.

Manufacturer: Pixelligent Technologies, LLC
6411 Beckley St,
Baltimore, MD 21224
Phone: (443) 529-8310  Fax: (410) 631-5161
msds@pixelligent.com

Emergency Phone Number:
Chemtrec Domestic North America: 800-424-9300
Chemtrec International: 703-527-3887

2. HAZARD IDENTIFICATION

GHS Classification
Aspiration Hazard (Category 1)
Skin irritation (Category 2)
Specific target organ toxicity - repeated exposure (Category 2)
Carcinogenicity (category 2)
Acute Aquatic toxicity (category 2)
Eye irritation (Category 2A)
Flammable Liquid (Category 3)
Specific target organ toxicity - single exposure (Category 3)
Acute toxicity, Dermal (Category 4)
Acute toxicity, Inhalation (Category 4)

GHS Label elements

Precautionary pictograms:

Signal word: DANGER

Hazard statements:
H26 Flammable liquid and vapour
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.
H351 Suspected of causing cancer
H373 May cause damage to organs through prolonged or repeated exposure
H401 Toxic to aquatic life
Precautionary statements:

Prevention:
P201 Obtain special instructions before use
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment
P241 Use explosion-proof electrical/ventilating/lighting equipment etc...
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area
P273 Avoid release to the environment
P280 Wear protective gloves/protective clothing/eye protection/face

Response:
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352: IF ON SKIN: Wash with plenty of water. If irritation persists, repeat flushing.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P331 Do not induce vomiting
P332+P313: IF skin irritation occurs: Get medical advice/attention.
P337+P313: IF eye irritation persists: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse
P370+P378 In case of fire: Use dry sand, foam, carbon dioxide or dry chemical powder extinguisher for extinction.

Storage:
P403+P233 Store in a well ventilated place. Keep container tightly closed.
P403+P325 Store in a well ventilated place. Keep cool.
P405 Store locked up.

Disposal:
P501 Dispose of contents/container in accordance with all national and local regulations.

3. COMPOSITION/INFORMATION OF INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zirconium dioxide (in nanocrystal form)</td>
<td>1314-23-4</td>
<td>25-75</td>
</tr>
<tr>
<td>Xylenes, mixed isomers</td>
<td>1330-20-7</td>
<td>9-72</td>
</tr>
<tr>
<td>Capping agent</td>
<td>Trade Secret</td>
<td>2-30</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>1-24</td>
</tr>
</tbody>
</table>

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard found at 29 CFR 1910.1200. Exact concentrations are being withheld due to trade secrets and due to variability of concentrations covering the range of products indicated above.
4. FIRST AID MEASURES

Consult a physician. Show this SDS to the doctor.

Eye
Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 15 minutes, while holding the eyelid(s) open. Obtain medical advice.

Skin
Remove contaminated clothing, shoes, and leather goods. Quickly and gently, blot or brush away excess chemical. Wash gently and thoroughly with lukewarm gently flowing water and non-abrasive soap for 20 minutes. Use silicone oil to remove chemical if soap and water is insufficient. If irritation persists, repeat flushing. Obtain medical advice. Completely decontaminate clothing, shoes and leather goods before reuse or discard.

Inhalation
Move person to fresh air. Give artificial respiration if needed. If breathing is difficult, qualified personnel should administer oxygen. Get immediate medical attention.

Ingestion
Do not induce vomiting unless directed to do so by medical personnel. Get immediate medical attention.

5. FIRE-FIGHTING MEASURES

Extinguishing Media
Use water fog or spray, universal foam, carbon dioxide or dry chemical.

Special Fire Fighting Procedures
Wear an approved, positive pressure, self-contained breathing apparatus and full protective clothing. Cool fire exposed containers with water.

Unusual Fire Hazards
Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. Vapors can accumulate in low areas, and can form explosive concentrations.

Hazardous Decomposition Products
Oxides of carbon

6. ACCIDENTAL RELEASE MEASURES

Remove all ignition sources. Vapor explosion hazard. Wear appropriate protective clothing to prevent eye and skin contact. Ventilate area. Keep out of sewers. Isolate area and keep unnecessary and unprotected personnel from entering the area. Cover with an inert absorbent material and collect into an appropriate container for disposal. Report spills and releases as required to appropriate authorities.

7. HANDLING AND STORAGE

Handling
Avoid breathing vapors, aerosols and mists. Use with adequate ventilation. Avoid contact with the eyes, skin and clothing. Keep product away from heat, sparks, flames and all other sources of ignition. Vapors are heavier than air and may travel long distances and accumulate in low lying areas. Ignition and/or flashback can occur. Electrically ground and bond all equipment. Use of non-sparking or explosion-proof equipment may be necessary. Empty containers can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. This product is a poor conductor of electricity and can become electrostatically charge, even in bonded or grounded equipment. Operations that can promote accumulation of static charges include but are not limited to mixing, filtering, pumping at high flow rates, splash filing, creating mists or sprays, container cleaning, sampling, gauging, etc. If dried, use approved PPE including respiratory protection and ventilation in the presence of solid
Storage
Store in a cool, dry, well-ventilated location away from incompatible materials. Keep containers closed when not in use. Minimize sources of ignition.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Component</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zirconium compounds</td>
<td>5 mg/m³ TWA (OSHA)</td>
</tr>
<tr>
<td>Xylenes</td>
<td>TWA/PEL 100 ppm (OSHA)</td>
</tr>
<tr>
<td></td>
<td>TWA 100 ppm (ACGIH TLV)</td>
</tr>
<tr>
<td>Capping agent (Trade Secret)</td>
<td>None Established</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>TWA/PEL 100 ppm (OSHA)</td>
</tr>
<tr>
<td></td>
<td>TWA 100 ppm (ACGIH TLV)</td>
</tr>
</tbody>
</table>

Respiratory Protection
If needed, an approved respirator with organic vapor/P100/N100 cartridges may be used. For higher exposures, a supplied air respirator may be required. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice. Use with adequate general or local exhaust ventilation to maintain exposure levels below the occupational exposure limits.

Skin Protection
Impervious gloves are recommended. Consult with glove supplier.

Eye Protection
Chemical safety goggles recommended.

Other Protective Equipment
Impervious clothing is required to prevent skin contact and contamination of personal clothing. If dried, use approved PPE including respiratory protection and ventilation in the presence of solid.

9. PHYSICAL AND CHEMICAL PROPERTIES

Properties shown are for Xylenes/Ethylbenzene.

Appearance and Odor: Liquid, colorless to light yellow

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>137-140 °C</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>25 °C (77 °F) Closed Cup</td>
</tr>
<tr>
<td>Flammable Limits: UEL</td>
<td>7 vol%</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.86 g/mL (20C)</td>
</tr>
<tr>
<td>Melting Point</td>
<td>&lt;-25°C (-13°F)</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammable Limits: LEL</td>
<td>1.1 vol%</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Incompatible materials
Strong oxidizing agents, strong acids, strong alkalis, reducing agents.

Conditions to avoid
Keep away from heat, sparks, flames and other sources of ignition.

Hazardous Decomposition Products
Combustion will produce oxides of carbon and unknown materials.
11. TOXICOLOGICAL INFORMATION

Health Hazards:
Eye: Causes eye irritation.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion: May be harmful if swallowed.
Aspiration: May be fatal if swallowed and enters airways.

Repeated/Chronic Exposure: central nervous system, auditory organs, lungs.

Specific target organ toxicity: narcotic effect. Respiratory tract irritation.

Carcinogenicity:
An increased tumor incidence has been observed in experimental animals; the significance of this finding to man is unknown.
(Ethylbenzene)

No toxicological data available for product

Xylenes Toxicity Data
Oral LD50 – rat: >2000 - <=5,000 mg/kg
Dermal LD50 – rabbit: > 1,700 mg/kg
Inhalation LC50 (4h) – rat: 5,000 ppm

12. ECOLOGICAL INFORMATION

No data available for product

13. DISPOSAL INFORMATION

Dispose of by incineration.
Any leftover product is to be disposed of by incineration. Disposal in accordance with all local, state and federal regulations (40CFR260-268). Contaminated packaging is to be triple rinsed with appropriate organic solvent/monomer prior to being disposed of. The contaminated rinse solvent/monomer is to be treated as hazardous waste and must be disposed of by incineration. No other disposal method is acceptable.

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>DOT Shipping Name:</th>
<th>Xylenes Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT Hazard Class:</td>
<td>3, PG III</td>
</tr>
<tr>
<td>UN Number:</td>
<td>UN1307</td>
</tr>
<tr>
<td>Hazardous Substance:</td>
<td>Xylenes</td>
</tr>
<tr>
<td>Reportable Quantity:</td>
<td>100 lbs</td>
</tr>
<tr>
<td>IATA Shipping Name:</td>
<td>Xylenes Mixture</td>
</tr>
<tr>
<td>IATA Hazard Class:</td>
<td>3, PG III</td>
</tr>
<tr>
<td>UN Number:</td>
<td>UN1307</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

The status under the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory) has not been determined. This product should only be used for Research and Development as allowed in 40 CFR 720.36.
Warning: this product contains a chemical known to the state of California to cause birth defects or other reproductive harm.
16. OTHER INFORMATION

SDS Date of Preparation: 05/07/2015

Glossary:
IARC = International Agency for Research of Cancer
NTP = National Toxicology Program
OSHA = Occupational Safety and Health Act
TSCA = Toxic substances Control Act

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