1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Products governed by this SDS: PCPA-##-ETA, PCPM-##-ETA, PCPN-##-ETA, PCPB-##-ETA, PCPG-##-ETA, PC16-##-ETA, PC18-##-ETA, PCPR-##-ETA, PCPA-##-##-ETA, PCPM-##-##-ETA, PCPN-##-##-ETA, PCPB-##-##-ETA, PCPG-##-##-ETA, PC18-##-##-ETA, PCPR-##-##-ETA, PC20-##-##-ETA, PCPG-X-##-ETA, PCPN-X-##-ETA, PCPB-X-##-##-ETA. Where “##” or “X” are any alphanumeric 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
Highly Flammable Liquid and Vapor (Category 2)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity - single exposure (Category 3)

GHS Label elements

Precautionary pictograms:

![Precautionary pictogram]

Signal word: DANGER

Hazard statements:
H225 Highly Flammable Liquid and Vapor
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 + H336 May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statements:
Prevention:
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.
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
P280 Wear protective gloves/protective clothing/eye protection/face

Response:
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.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P337+P313 If eye irritation persists: Get medical advice/attention.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P370+P378 In case of fire: Use dry sand, foam, carbon dioxide or dry chemical powder extinguisher for extinction.
P302+P352: IF ON SKIN: Wash with plenty of water. If irritation persists, repeat flushing.
P332+P313: If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse

Storage:
P403+P235 Store in a well ventilated place. Keep cool.
P403+P233 Store in a well ventilated place. Keep container tightly closed.
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>10-90</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141-78-6</td>
<td>10-90</td>
</tr>
<tr>
<td>Capping Agents</td>
<td>Trade Secret</td>
<td>2-20</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 15 minutes. 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 AND EXPLOSION DATA**

**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**  
Smoke, fumes containing incomplete combustion products. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back.

**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. 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. If dried, use PPE 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.

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>Ethyl acetate</td>
<td>400 ppm TWA (NIOSH)</td>
</tr>
<tr>
<td></td>
<td>400 ppm TWA (OSHA)</td>
</tr>
<tr>
<td></td>
<td>400 ppm TWA (ACGIH)</td>
</tr>
<tr>
<td>Capping agents</td>
<td>None Established</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.

**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 PPE in the presence of solid ZrO₂ in Ethyl Acetate.

9. PHYSICAL AND CHEMICAL PROPERTIES

Properties shown are for Ethyl Acetate

Appearance: Liquid

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>75-78 °C</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>103 mbar @ 20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>3.04 (Air =1.0)</td>
</tr>
<tr>
<td>Flash Point</td>
<td>-4 °C</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.902 g/cm³</td>
</tr>
<tr>
<td>Melting Point</td>
<td>-83.5 °C</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Slightly soluble</td>
</tr>
<tr>
<td>Flammable Limits: LEL</td>
<td>2.0%</td>
</tr>
<tr>
<td>Flammable Limits: UEL</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Incompatibility/Conditions to Avoid
Strong oxidizers. Keep away from heat, sparks, flames and other sources of ignition.

Hazardous Decomposition Products
Combustion will produce oxides of carbon.

11. TOXICOLOGICAL INFORMATION

Health Hazards:
Eyes: Causes eye irritation. High vapor/aerosol concentrations may be irritating.
Skin: Prolonged or repeated contact with skin may cause redness, itching, irritation and eczema/chapping.
Inhalation: May cause irritation to the mucous membranes and upper respiratory tract. In high concentrations, vapors and aerosol mists have a narcotic effect and may cause headache, fatigue, dizziness and nausea.
Ingestion: Irritating. May cause nausea, stomach pain and vomiting. Ingestion may result in vomiting; aspiration (breathing) of vomitus into lungs must be avoided as even small quantities may result in aspiration pneumonitis.


Chronic effects: organic solvents may be absorbed into the body by inhalation and cause permanent damage to the nervous system, including the brain. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May cause eyes, skin, and respiratory irritation.

No toxicological data available for product

Ethyl Acetate Toxicity Data
Dermal: LD50 (rabbit) – 18,000 mg/kg
Oral: LD50 (rat) – 5,620 mg/kg

12. ECOLOGICAL INFORMATION

No ecological toxicity data available for product

Ethyl Acetate Ecological Toxicity Data
LC50 (gold orfe)  270 mg/L, 48.0 hr
EC50 (water flea) 717 mg/L, 48 hr
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>ETHYL ACETATE Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT Hazard Class:</td>
<td>3, PG II</td>
</tr>
<tr>
<td>UN Number:</td>
<td>UN1173</td>
</tr>
<tr>
<td>IATA Shipping Name:</td>
<td>ETHYL ACETATE Mixture</td>
</tr>
<tr>
<td>IATA Hazard Class:</td>
<td>3, PG II</td>
</tr>
<tr>
<td>UN Number:</td>
<td>UN1173</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

All components of this product are included on the TSCA Inventory or are not required to be listed.

16. OTHER INFORMATION

SDS Date of Preparation: 03/22/2015

Emergency Overview

Extremely flammable liquid and vapor - vapor may cause flash fire. Will be easily ignited by heat, spark or flames. Causes eye irritation. Harmful if swallowed - may enter lungs if swallowed or vomited. Prolonged or repeated skin contact may cause drying, cracking, or irritation. High vapor concentrations may cause drowsiness and irritation of the eyes or respiratory tract.

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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