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Chemical Substitutes
SafetyNet #: 72

This SafetyNet suggests chemical substitutes for commonly used chemicals to promote a safer work environment. Consider using the safer substitute if it works in your process:

Sample of Chemical Substitute List. View full list here [1].

<table>
<thead>
<tr>
<th>Original Material</th>
<th>Substitute</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetamide</td>
<td>Stearic acid</td>
<td>In phase change and freezing point depression.</td>
</tr>
<tr>
<td>Benzene</td>
<td>Alcohol and acetonitrile</td>
<td>No comment.</td>
</tr>
<tr>
<td>Benzoyl peroxide</td>
<td>Lauryl peroxide</td>
<td>When used as a polymer catalyst.</td>
</tr>
<tr>
<td>Butyl or petroleum- Super Brute Orange (Applied containing cleaners)</td>
<td>Research, Inc.</td>
<td>Non-caustic, non-butyl cleaner/degreaser. Water soluble, emulsifies tough grease, soil, sludge, ink, etc. For use on floors, machinery, etc., and is free rinsing.</td>
</tr>
<tr>
<td>Carbon Tetrachloride</td>
<td>Cyclohexane</td>
<td>In test for halide ions.</td>
</tr>
<tr>
<td>Carbon Tetrachloride</td>
<td>Isopropyl alcohol</td>
<td>Less toxic, better for environment.</td>
</tr>
<tr>
<td>Chloroform</td>
<td>Dichloromethane</td>
<td>Kits also available for purification/isolation of DNA without organic solvents (Promega Corp, Stratagene). StrataClean resin for concentration of proteins.</td>
</tr>
<tr>
<td>Chromic acid</td>
<td>Potassium hydroxide sonic baths</td>
<td>Last resort includes KOH/ethanol bath, acid bath or NaChromix.</td>
</tr>
</tbody>
</table>

For additional information, contact the following vendors:

- Armchem International (888-276-2436/armchem.com [2])
- ESPI (800-638-2581/ESPI-metals.com [3])
- Flinn Scientific, Inc. (800-452-1261/flinnsi.com [4])
• Invitrogen Corporation (800-955-6288/invitrogen.com [5])
• National Diagnostics (800-526-3867/nationaldiagnostics.com [6])
• Phenix Research (800-767-0665/phenixresearch.com [7])
• PCC and RBD Detergents (800-874-3723/piercenet.com [8])
• Promega Corp (800-356-9256/promega.com [9])
• Stratagene (800-227-9770/genomics.agilent.com [10])

**Contact**

**Research Safety**
researchsafety@ucdavis.edu 530-752-1493
FAX: 530-752-4527

**More information**

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