Consumer Product Cleanup & Thinning Solvents
Protecting Health and the Environment

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WRPPN 2008
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Consumer Product Cleanup Solvents & Thinners—Brief Overview

- Solvent-based products sold in hardware stores, paint supply stores, etc.
- Consumers include “public” & small & medium-sized businesses
- Paint thinners and lacquer thinners are most common types
- Application equip. cleaning & paint thinning
- Substrates include metal, wood, & plastic
Consumer Product Cleanup Solvents & Thinners—Health / Environ. Concerns

- High VOC/smog-producing chemicals
- Increase asthma/other resp. diseases
- Toxic chemicals (nervous system, etc.)
- Health hazard info not accessible/understood
- Sensitive/vulnerable populations (children, pregnant women, elderly) potentially exposed
- Water, other potential environ. pollution from improper disposal
Lacquer Thinners & Paint Thinners

Lacquer Thinners

- Blend of different solvents

Paint Thinners

- Petroleum-based solvents
Lacquer Thinners & Paint Thinners

- Furniture Refinishing
- Cleaning Equipment
- Painting Metal
Finding Out What’s in Specific Lacquer & Paint Thinner Products

- Review labels/Material Safety Data Sheet (MSDS) before purchase
- Identify chemicals & CAS #s under “Hazardous Ingredients”
- Identify % of chemical in product
- Contact vendor if MSDS is incomplete
Material Safety Data Sheets (MSDSs)
The Good, The Incomplete, The Confusing
Paint & Lacquer Thinner Product MSDSSs—Some of the Problems

Material Safety Data Sheet

Section 1 General Information

Manufacturer:
Zinsser Company, Inc.
173 Belmont Drive
Somerset, NJ 08875
(732) 469-8100

Emergency Telephone: Chemtree (800) 424-9360

Date: December 1, 2006

Product Name: Parks Paint Thinner

Codes: 002011 002012 002015 002023

Section 2 Hazardous Ingredients

<table>
<thead>
<tr>
<th>Hazardous Component</th>
<th>CAS#</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
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</thead>
<tbody>
<tr>
<td>Stoddard Solvent</td>
<td>11-3</td>
<td>500 ppm</td>
<td>100 ppm</td>
</tr>
<tr>
<td>1,2,4-trimethyl benzene</td>
<td>85-83-6</td>
<td>10 ppm (IWA)</td>
<td>25 ppm (Colling)</td>
</tr>
</tbody>
</table>

Emergency Overview: This material is a colorless liquid with a characteristic kerosene-like odor. It is flammable and has a flash point of 103°F. The vapor is heavier than air and may travel along the ground. Ignition of the vapor by distant ignition sources is possible.

Strengths
- Essential for identifying specific toxic ingredients in products

Weaknesses
- Often incomplete—% ingredients; trade secret
- Health hazard info often incomplete or inaccurate
- Overly complex; English, only, usually.
## High VOC Lacquer Thinner Products
### IRTA Project

<table>
<thead>
<tr>
<th>Product</th>
<th>Haz. Ingredient</th>
<th>%</th>
<th>CAS #</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTL10 Lacquer Thinner</td>
<td>Acetone</td>
<td>20</td>
<td>67641</td>
</tr>
<tr>
<td></td>
<td>Toluene*</td>
<td>40-50</td>
<td>108883</td>
</tr>
<tr>
<td></td>
<td>PGME Acetate</td>
<td>5</td>
<td>108656</td>
</tr>
<tr>
<td></td>
<td>Isopropyl alcohol</td>
<td>20</td>
<td>67630</td>
</tr>
<tr>
<td></td>
<td>Petroleum distillates</td>
<td>10-20</td>
<td>64741840</td>
</tr>
<tr>
<td>AWC Lacquer Thinner</td>
<td>Toluene*</td>
<td>50-70</td>
<td>108-88-3</td>
</tr>
<tr>
<td></td>
<td>Methyl ethyl ketone</td>
<td>15-25</td>
<td>78-93-3</td>
</tr>
<tr>
<td></td>
<td>Methyl isobutyl ketone</td>
<td>15-25</td>
<td>108-10-1</td>
</tr>
<tr>
<td>Parks Lacquer Thinner</td>
<td>Methanol*</td>
<td>16</td>
<td>67-56-1</td>
</tr>
<tr>
<td></td>
<td>Methyl ethyl ketone</td>
<td>10</td>
<td>78-93-3</td>
</tr>
<tr>
<td></td>
<td>Toluene*</td>
<td>22</td>
<td>108-83</td>
</tr>
<tr>
<td></td>
<td>Cyclohexane</td>
<td>1</td>
<td>110-82-7</td>
</tr>
</tbody>
</table>

*Additional toxic effects
Health Effects of High-VOC Lacquer Thinner Solvents—General

Central Nervous System or Brain
- **Acute:** Depressant effect when inhale excessive amounts. Symptoms include headache, dizziness, etc. (drunkenness)
- **Chronic:** Fatigue, sleeplessness, poor coordination, difficulty concentrating, depression, etc. (toxic encephalopathy)

Skin
- Dissolve natural protective oils and can cause dermatitis.

Eyes, Nose, Throat, Lungs
- Vapors can irritate with symptoms that include stinging & burning of eyes, burning of nose and throat, coughing, chest tightness, etc.

Liver and Kidneys
- Can cause damage at high exposure levels. Drinking increases risk of liver damage.
High VOC Lacquer Thinner Solvents
Health Effects
(Additional, Specific Toxicity)

Developmental Toxicity

Toluene is a developmental toxicant in animals; on Prop 65 List. Causes fetal alcohol syndrome at very high concentrations. Metabolism defect in some Asian populations causes increased sensitivity.

Methanol is a developmental toxicant in animals. It has caused visual disturbances in exposed workers. It can be absorbed through the intact skin.

Color Blindness

Toluene causes a loss of blue-yellow color vision at low levels of occupational exposure.
# High VOC Paint Thinner Products

## IRTA Project

<table>
<thead>
<tr>
<th>Product</th>
<th>Haz. Ingredient</th>
<th>%</th>
<th>CAS#</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Z Paint Thinner</td>
<td>Stoddard solvent 1,2,4-Trimethyl-benzene*</td>
<td>100</td>
<td>8052-41-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unknown</td>
<td>95-63-6</td>
</tr>
<tr>
<td>AllPro Paint Thinner (Metal)</td>
<td>Stoddard solvent 1,2,4-Trimethyl-benzene*</td>
<td>95-100</td>
<td>8052-41-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0-2</td>
<td>95-63-6</td>
</tr>
<tr>
<td>Paint Thinner (Bortz)</td>
<td>Petroleum distillates</td>
<td>100</td>
<td>8002-05-9</td>
</tr>
</tbody>
</table>
High VOC Paint Thinner Solvents
Health Effects
(General)

Central Nervous System or Brain

**Acute:** Depressant effect when inhale excessive amounts. Symptoms include headache, dizziness, etc. (drunkenness)

**Chronic:** Fatigue, sleeplessness, poor coordination, difficulty concentrating, depression, etc. (toxic encephalopathy)

Skin

Dissolve natural protective oils and can cause dermatitis.

Eyes, Nose, Throat, Lungs

Vapors can irritate with symptoms that include stinging & burning of eyes, burning of nose and throat, coughing, chest tightness, etc.

Liver and Kidneys

Can cause damage at high exposure levels. Drinking increases risk of liver damage.
High VOC Paint Thinner Solvents
Health Effects
(Additional, Specific Toxicity)

Other Chronic Health Effects

1,2,4-Trimethylbenzene

Has caused asthmatic bronchitis and blood disorders among workers exposed at up to 60 ppm. Some of the blood disorders may have been due to benzene contamination. Benzene content in solvent should be monitored.
Types of Solvents
Petroleum Distillates

Aliphatic Hydrocarbon Solvent
n-Hexane

Aromatic Hydrocarbon Solvents
Benzene
1,2,4-trimethylbenzene
Safer Alternatives to High VOC Lacquer & Paint Thinners Consumer Products

- Acetone

- Acetone blended with 2.5% dipropylene glycol monomethy ether

- Acetone with 1% Soy Gold 2500
Toxic Chemicals—Protecting Health & the Environment—Some of the Challenges

- Large number of industrial chemicals/limited toxicity testing
- Burden on government to prove chemicals are toxic
- “Silo” effect--VOC & Toxics prevention efforts often are not coordinated
- Wide disparity in regulating toxics to protect workers versus protecting communities
- New industries, technologies, & workforces pose additional challenges
Protecting Health & the Environment From Toxic Solvents--Some Long-Term Strategies

- An effective (mandated) Green Chemistry Policy and Program that focuses on a comprehensive approach to safer materials, processes, etc.

- An effective Toxic Substances Control Act (TSCA) with effective enforcement

- Dedicated funding for the development & testing of effective, safer alternatives

- Mandated use of safer, effective alternatives

- Integrated strategies among programs regulating toxics & VOCs; occupational & community toxics-related health effects