Use of Spray Oil
Highly refined oils

- Any oil named a superior, supreme, or 70-second oil are paraffinic spray oils and are appropriate for insect control.
- Highly refined oils have a high content of unsulfonated residues which make them safer for tender leaves.
- Do not use vegetable oils for insect control without caution because of the potential for phytotoxicity.
Defining oils

**Oil composition:** paraffinic: straight chain; naphthenic ring structure in chains. Spray oils in horticulture usually have high concentration of paraffinic oil, which have more toxicity to insects.

**Viscosity:** time for a specific volume of oil, heated to 100 F to pass through a standard opening. Typical range 60 to 110 second oil. Lighter weight oils have low viscosity.

**Unsulfonated residue**—the higher, the safer to the plant. Superior oils have at least 92% UR

**50% distillation point** – the temperature at which half the oil distills (boils) under a 10 mm mercury vacuum. Oils with lower 50% distillation point dissipates (disappears) more quickly. Lighter oils are in the range of 415 to 440 F, Heavier oils range from 455 to 470 F and have greater potential for phytotoxicity

**10% to 90% distillation range** – the temperature range needed to evaporate 10% to 90% of the sample. Narrow range oils have a small temperature range. Narrow range oils are more refined and predictable in field conditions
## Example of common oils

<table>
<thead>
<tr>
<th>Prescr Trmt Ultra-Fine Oil</th>
<th>Paraffinic conc (%)</th>
<th>Viscosity</th>
<th>Unsulf residue</th>
<th>50% dist point</th>
<th>10 to 90% dist range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>98.8</td>
<td>?</td>
<td>92% min</td>
<td>414 F</td>
<td>65 F max</td>
</tr>
<tr>
<td>Sunspray Oil 11E</td>
<td>?</td>
<td>?</td>
<td>92%</td>
<td>467 F</td>
<td>136 F</td>
</tr>
<tr>
<td>JMS Stylet Oil</td>
<td>97.1</td>
<td>?</td>
<td>99.1%</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Wilbur Ellis Superior Oil</td>
<td>?</td>
<td>?</td>
<td>93%</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Crop Oil Concentrate</td>
<td>85*</td>
<td>?</td>
<td>93%</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Damoil</td>
<td>98*</td>
<td>?</td>
<td>92%</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Omni Oil</td>
<td>98</td>
<td>?</td>
<td>92%</td>
<td>415 F</td>
<td>?</td>
</tr>
</tbody>
</table>

* = claimed to be petroleum based
Omni Oil

SPECIMEN LABEL

MANUFACTURED BY
HELENA CHEMICAL COMPANY
225 SCHILLING BOULEVARD, SUITE 300
COLLIERVILLE, TENNESSEE 38017

PERSONAL PROTECTIVE EQUIPMENT
Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical resistance category selection chart.
Applicators and other handlers must wear:
Long-sleeved shirt and long pants
Chemical-resistant gloves, such as Barrier Lamine, Nitrile Rubber, Neoprene Rubber or Viton.
Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.
When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS
Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

INSECTICIDE-MITICIDE) LIQUID
A NARROW RANGE 415 SUPERIOR SPRAY OIL

OMNI OIL 6E

ACTIVE INGREDIENT:
Petroleum oil, paraffin base.......................... 98.00%
INERT INGREDIENTS:................................. 2.00%
TOTAL .............................................. 100.00%
Superior Petroleum Oil Minimum Unsulfonated Residue - 92%
NOTE: THIS PRODUCT IS NOT INTENDED FOR GREENHOUSE USE.

KEEP OUT OF REACH OF CHILDREN
CAUTION
PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS & DOMESTIC ANIMALS
CAUTION
Harmful if swallowed or absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with eyes, skin, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

FIRST AID
IF SWALLOWED: • Call a poison control center or doctor immediately for treatment advice.
## Sunspray 11E Oil

<table>
<thead>
<tr>
<th>Description</th>
<th>Sunspray 11N/11E are highly refined paraffinic mineral oils for use in agricultural and horticultural applications.</th>
</tr>
</thead>
</table>
| Application | As dormant and deep dormant oil to assure ample resistance to weathering.  
               As adjuvant or supplemental carrier for herbicides.  
               In triazine-oil-water emulsions.  
               SUNSPRAY 11E contains an emulsifier and forms a quick-breaking emulsion in water. SUNSPRAY 11N is a straight mineral oil for formulators who prefer their own emulsifier. |
| Properties | - Sunspray oils are low phytotoxic due to their unsulfonated residue of 92% minimum.  
             - Sunspray 11E/11N have a slightly higher midpoint and slightly broader distillation range which makes them more effective during deep dormancy.  
             - Sunspray 11E/11N increases the effectiveness of herbicides. |
Action of oils for pest control

• Suffocate immobile insect forms such as scales, eggs
• Action is best when eggs are getting close to hatching
• Smothering action is best when oil coverage is good
Effective oil treatment

• High water volume is important for effective oil treatment. Concentrate no more than 2X.
Checking oil

Add 2 teaspoon of spray oil to jar with water. Cap and shake 15 times. Let it stand 5 minutes.

Good oil: the contents will turn milky white with a thin layer of bubbles at top and not separate within 5 minutes.
Appearance of emulsions

Left – unstable emulsion, right – stable emulsion
Avoiding burning with oil

• Do not use oils within 24 hrs before or after low temperatures (below 40 F). Oils make tender tissue more susceptible to frost damage
• Apply oils in rapid drying conditions to avoid phytotoxicity problems
• Avoid damage due to double application that occurs when the first side dries before the other side of the tree is sprayed
• Trees under moisture stress and at temperatures over 80 F are more prone to burn by oil treatment
Incompatibilities with oil

• sulfur and sulfur-containing compounds such as Captan, Sevin
• Don’t spray within 3 days of zinc sulfate application—some zinc formulations can be applied with oil, check label.
• Do not use Nufilm P or Nufilm M17 within a week of using an oil spray
Types of oil

**True dormant oil:** 100 to 110 second oil, brands Sun 11E, Valent Aglite neutral oil. Typical rate for mature semidwarf trees is 3% (12 gal in 400 gal water/acre) in the dormant to delayed dormant window.

**70 second oil:** Brands are Sunspray 6E, Chemcrop Spray Oil 6E. Typical rate is 2% (8 gal in 400 gal water/acre) up to the pre pink window.

**50 to 60 second summer oil:** Brands are Volck Supreme oil (Western U.S.), Sunspray Ultrafine Spray Oil. Rates vary from 1.5 to 3 gal/acre.