COWBOY AFTER OSHA

AUTOMATIC HIGH-VOLUME "WHOA"
FLIP-DOWN SUNGLASSES
ROLL BAR
HARD HAT WITH WIDE BRIM & EARCARE PROTECTORS
PAVED BACK SEAT & HEAD RESTRAINT
TAIL & DIRECTIONAL LIGHTS
BACK UP LIGHTS
SHOULDER HARNESS
AUTOMATIC, AIR FILLED CHEST PROTECTOR
MAPS IF YOU GET LOST & CHECKLIST BEFORE RIDING
BLUE TAIL FLY REPELLENT
SEAT BELT
SELF STARTER (ACCESSORY)
KNEE PADS (JUST IN CASE) & QUILTED PANTS

GRAB RAIL
SAFETY SWITCHES & HOTLINE TO INSURANCE COMPANY
STEEL TOED STIRRUPS
SAFETY NET ALL AROUND

4 WHEELS TO KEEP HORSE UPRIGHT IN CASE HE SLIPS - HENCE NOT ENDANGERING RIDER

*OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PERSONAL PROTECTIVE EQUIPMENT
For Pesticides and Other Tasks!
An old subject...PPE...still, we don’t always follow it.
Routes of EXPOSURE

- SKIN
- EYES
- INHALATION
- INGESTION
Protecting your health from the hazards!

- The dose is the poison!
- How much?
- How long?
- What method?
- What protection?
Protecting your health from the hazards!

- **The dose is the poison!**
- Tylenol-4 Grams per day?
- Cortisone cream = no sleep?
- Heavy metals - Lead to Cadmium?
- Concentrated/dilute pesticides?
How to protect yourself is determined by...

- How *toxic/dangerous* is the pesticide, substance or product
- What *form* is it used-dry/liquid
- The *activity* you are performing

(mixing, loading, spraying, welding, maintenance)
80,000 chemicals today

• 2000 have been studied
• 200 are regulated by OSHA
• There is a lot we don’t know about the long term effects!
But PPE isn’t just for pesticides...

- Grinding-welding
- Driving in dust clouds behind your boss
- Cutting tree branches
- Maintenance activities
- Solvents/paints
PPE Citations

- PPE: Missing or Wrong type
- Cleaning
- Storage
- Respirators
PPE Violations

- Not label
- Gloves
- Ftwr
- Eyewr
- Apron
- Not in cab
Conduct a Hazard Assessment
What were they thinking?
A kids birthday party in a construction zone?
HAZARD Recognition/PPE

• Fails for several reasons.
  • Common sense?...Who’s?
  • Shortcuts or bypassing normal policies.
  • Temporary solutions or “making do” with what you have.
  • Too familiar with the area or task.
Everybody’s “common sense” is different.
PROBABILITY AND SEVERITY
What is the likelihood something will happen?
If it does, what is the severity of the injuries?
Shortcuts or bypassing normal policies/programs create hazards.
Temporary solutions or “making do” with what you have can cause hazards.
“Making do”... with what you have causes hazards.
Too familiar with the task...
They changed the cleaner, but not the PPE the worker wore.
2. Hazards identification

**Product AS SOLD**

**Physical state** : Liquid.

**Emergency overview** : DANGER!

CAUSES DIGESTIVE TRACT, EYE AND SKIN BURNS.

Do not ingest. Do not get in eyes, on skin or on clothing. Wash thoroughly after handling.

**Routes of entry** : Skin contact, Eye contact, Inhalation, Ingestion
Barriers to Wearing PPE (General)

- Where can you purchase PPE?
- Is it available when you need it?
- Do you know what PPE to wear?
- Are handlers trained in donning, doffing, cleaning, and storing of their PPE?
PPE Selection for Pesticides

The Label is-the Law!

PPE on the product label or safety data sheet is your main source of information!
Read the labels...
Read the label

- Follow directions for PPE for pesticides
  - Handlers
  - Applicators vs. Mixers
  - Early entry workers
- *Minimum* requirements are given – can wear more
Personal Protective Equipment (PPE)

- **Minimum**: 
  - Long-sleeved shirt
  - Long trousers or coveralls
  - Gloves
  - Shoes plus socks
  - Hat

Protect Yourself!
Cotton, Denim, Leather: Not recommended for most pesticide applications!
Check the (M)SDS

• If no or little info on the product label

• For non-pesticide chemicals, e.g.,
  – Fertilizers
  – Paints
  – Welding Supplies
  – Solvents
  – Etc.
Hand Protection

Rubber
Nitrile
PVC
Barrier Laminate
Barriers to Wearing PPE (Gloves)

- Gloves can be hot (or not warm enough)
- Gloves reduce grip and tactile feel
- Gloves are not correct for the job
- Glove sizes for women limited
No gloves??

Fluorescent dye shows how much pesticide can get on the hands while handling it
Think of ways you can contaminate

- Vehicles
- Cell phones
- Lunch boxes

- Act like a Surgeon...to protect yourself and others from contamination
Use Gloves!

- Especially during mixing & loading
- Unlined and waterproof
- Check for holes
- If spraying overhead, tuck sleeves inside gloves…
  … and fold the cuffs up
Gloves reduce dermal exposure by 99% when mixing, loading, and applying.

**Exception:** Methyl bromide and other fumigant gases can become trapped inside gloves and cause burns.
The Label Says:

• PERSONAL PROTECTIVE EQUIPMENT (PPE)

• Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category F on an EPA chemical-resistance category selection chart.

• Applicators and other handlers must wear:
  • Chemical-resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber or Viton
Pesticide use and your personal protective equipment (PPE)

The Label is the Law!
When using pesticide products, the requirements for PPE on the product label are your main source of information.

The Environmental Protection Agency (EPA) has labeling requirements for pesticide products. Pesticide labels must have signal words, which describe the acute (short-term) toxicity of the formulated pesticide product. The signal word can be either: DANGER/POISON, DANGER, WARNING, or CAUTION. Products with the DANGER/POISON signal words are the most toxic. Products with the signal word CAUTION are comparatively less toxic. All products must be handled with care. Manufacturers are required to provide information about what PPE a handler must wear when mixing, loading, handling, and applying pesticides. Some of this information may be confusing. For instance, what does the label mean when it specifies “chemical-resistant” protective clothing?

*Chemical-resistant* materials prevent the measurable movement of certain chemicals through the material to your protected skin for a limited period of use or time. No material claims to be chemical proof. If the label refers to a chemical-resistance category (A – H), choose the category of resistance level that best matches the length of time you will be handling the pesticide or change (into a new pair of gloves, for instance) before you reach the resistance time limit for the material. (See the chart on page 3). The resistance categories are based on the solvents used in the pesticides, not the active ingredients. Different formulations of the same pesticide may require PPE from different chemical-resistance categories.
# Environmental Protection Agency chemical resistance categories for selected personal protective materials

<table>
<thead>
<tr>
<th>Selection category listed on pesticide label</th>
<th>Type of personal protective material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Barrier laminate</td>
</tr>
<tr>
<td>A (dry and water-based)</td>
<td>High</td>
</tr>
<tr>
<td>B</td>
<td>High</td>
</tr>
<tr>
<td>C</td>
<td>High</td>
</tr>
<tr>
<td>D</td>
<td>High</td>
</tr>
<tr>
<td>E</td>
<td>High</td>
</tr>
<tr>
<td>F</td>
<td>High</td>
</tr>
<tr>
<td>G</td>
<td>High</td>
</tr>
<tr>
<td>H</td>
<td>High</td>
</tr>
</tbody>
</table>

* Includes natural rubber blends and laminates.

**Key:**
- **High:** Highly chemical resistant. Clean or replace PPE at end of each day’s work period. Rinse off pesticides at rest breaks.
- **Moderate:** Moderately chemical resistant. Clean or replace PPE within an hour of contact.
- **Slight:** Slightly chemical resistant. Clean or replace PPE within 10 minutes of contact.
- **None:** Not chemical resistant. Do not wear this type of material as PPE when contact is possible.
Gloves
What about glove liners?

- No more than 10 hours use
- Or within 24 hr when first put on
- Must be shorter than rubber glove
- Can NOT wash them
- If contaminated ➔ Throw!
Chemical-resistant Materials

- Watch for signs of wearing and degrading:
  - color change
  - spongy
  - swollen
  - jelly-like
  - cracked
  - brittle
What is wrong with these gloves?

Lining can absorb pesticide!
What is wrong with this picture?

Wear long-sleeved shirts or tyvek sleeves!
Glove sizing

• If the gloves you are purchasing come in numbered sizes, you can correlate the inch measurement directly to the numerical size listed for the glove. For example, if the measurement taken is 8 inches, then you would select a size 8 glove.
Gloves in S, M, L or XL, can be converted to a numerical size using the glove size chart:

<table>
<thead>
<tr>
<th>Men's Sizes</th>
<th>Inch</th>
<th>cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>XS</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>S</td>
<td>7 1/2-8</td>
<td>20</td>
</tr>
<tr>
<td>M</td>
<td>8 1/2-9</td>
<td>23</td>
</tr>
<tr>
<td>L</td>
<td>9 1/2-10</td>
<td>25</td>
</tr>
<tr>
<td>XL</td>
<td>10 1/2-11</td>
<td>28</td>
</tr>
</tbody>
</table>
## Online glove selection

<table>
<thead>
<tr>
<th>Glove Length</th>
<th>Glove Size</th>
<th>Glove Thickness</th>
<th>Glove Texture Location</th>
<th>Lining</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsupported</td>
<td>12&quot;</td>
<td>7</td>
<td>11.00 mil</td>
<td>-</td>
<td>Flock</td>
</tr>
<tr>
<td></td>
<td>12&quot;</td>
<td>7</td>
<td>15.00 mil</td>
<td>-</td>
<td>Flock</td>
</tr>
<tr>
<td></td>
<td>12&quot;</td>
<td>8</td>
<td>11.00 mil</td>
<td>-</td>
<td>Flock</td>
</tr>
<tr>
<td></td>
<td>12&quot;</td>
<td>9</td>
<td>11.00 mil</td>
<td>-</td>
<td>Flock</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>12&quot;</td>
<td>11</td>
<td>11.00 mil</td>
<td>-</td>
<td>Flock</td>
</tr>
<tr>
<td></td>
<td>13&quot;</td>
<td>7</td>
<td>11.00 mil</td>
<td>Smooth</td>
<td>Unlined</td>
</tr>
<tr>
<td></td>
<td>13&quot;</td>
<td>7</td>
<td>11.00 mil</td>
<td>-</td>
<td>Unlined</td>
</tr>
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<td></td>
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<td>11.00 mil</td>
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<tr>
<td></td>
<td>13&quot;</td>
<td>8</td>
<td>11.00 mil</td>
<td>-</td>
<td>Unlined</td>
</tr>
</tbody>
</table>
Eye Protection
The Label Says:

- PERSONAL PROTECTIVE EQUIPMENT (PPE)
- Protective eyewear
Barriers to Wearing PPE (Eye and Face)

- Employers have workers wear more than they need
- Foggy lenses
- Wearing dirty gloves and touching face/skin
- Sunglasses are better outside
Eye Protection, so many choices...
What the Label’s Signal Words MEAN

• **Caution** - irritation, stinging, burning; no permanent damage

• **Warning** - Temporary, but substantial eye injury; no permanent damage

• **Danger** – Corrosive, irreversible eye damage; permanent

• **Danger/Poison** – Can be corrosive, can absorb through eye tissue to produce systemic poisoning; can be permanent
Eye Protection

Caution

Warning

Danger

Danger/Poison
Follow the Label*
...mixer / loaders must wear...

Table 2. Selection guide for eye and face protection

<table>
<thead>
<tr>
<th>Label requirement</th>
<th>Acceptable eye protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective eyewear</td>
<td>Safety glasses with brow, front and temple protection, or face</td>
</tr>
<tr>
<td></td>
<td>shield, or goggles, or full-face respirator</td>
</tr>
<tr>
<td>Goggles</td>
<td>Goggles or full-face respirator</td>
</tr>
<tr>
<td>Full-face respirator</td>
<td>Full-face respirator</td>
</tr>
</tbody>
</table>
Body Protection
Barriers to Wearing PPE (Suits)

- Employer doesn’t know what is chemical resistant
- Suits are taped and not replaced
- Reusing disposable suits
- Label requirement vs. heat stress
Chemical-Resistant Clothing

- Prevents measurable movement of certain chemicals through material to your skin for a **limited period of use or time**.
Chemical-resistant Materials

- Read the label
- What clothing is specifically required

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are Chemical-resistant to this product are listed below. If you want more options, follow the instructions for category F on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear: A) Long-sleeved shirt; B) Long pants; C) Chemical-resistant gloves such as Barrier Laminate, Butyl Rubber, Nitrile Rubber or Viton; D) 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.
Chemical-Resistant Clothing

- Prevents most chemicals from reaching the skin
- PVC plastic, rubber, non-woven coated fabrics

Rubber  Nitrile  PVC  Barrier Laminate
What is a chemical resistant suit?

- Butyl rubber, neoprene, PVC, or coated or laminated polyethylene fabrics
- Greater material thickness, bound or sealed seams, covered zippers and vent holes
- Elasticized at wrist and ankle
- Manufacturer specifies it to be so...
Pesticide use and your personal protective equipment (PPE)

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# Chart for Protective Suits

## Characteristics of some commonly-used pesticide coveralls

*Consult manufacturers for more information*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tempro®</td>
<td>IV</td>
<td>(none)</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>LOW</td>
</tr>
<tr>
<td>ProShield2®</td>
<td>I</td>
<td>III</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>LOW</td>
</tr>
<tr>
<td>Tyvek®</td>
<td>I</td>
<td>III</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>LOW</td>
</tr>
<tr>
<td>Tyvek® QC / sewn seams</td>
<td>I</td>
<td>II</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>LOW</td>
</tr>
<tr>
<td>Tyvek® QC / sealed seams</td>
<td>I</td>
<td>II</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>Moderate</td>
</tr>
<tr>
<td>Kleenguard® LP</td>
<td>I</td>
<td>III</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>LOW</td>
</tr>
<tr>
<td>Tychem® SL / surged seams</td>
<td>I</td>
<td>I</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>Moderate</td>
</tr>
<tr>
<td>Tychem® SL / sealed seams</td>
<td>I</td>
<td>I</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>HIGH</td>
</tr>
<tr>
<td>PVC coverall</td>
<td>I</td>
<td>I</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>HIGH</td>
</tr>
<tr>
<td>PVC suit</td>
<td>I</td>
<td>I</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

*Protection Class* is determined by the "Signal Word" on the pesticide label:

- **Class I** = Signal words "DANGER" or "DANGER/POISON" (highly toxic)
- **Class II** = Signal word "WARNING" (toxic)
- **Class III** = Signal word "CAUTION" (less toxic)
- **Class IV** = Signal word "CAUTION" (least toxic)
- Wear loosely over clothing
- Zippers should be covered
- Two-piece: top should extend well below the waist and remain untucked
Chemical-resistant Suits

- Offers the most protection
- Wears out with chemical contact over time
- Made of rubber or plastic
- May be too warm
- Drink plenty of water!
- Take frequent breaks!
Chemical-Resistant Aprons

- **Use when:**
  - mixing and loading
  - cleaning equipment
- **From neck to knees**
- **WARNING:** aprons can get caught in machinery!
Rain suits

Chemical resistant?
Washable?
Cloth coveralls

Chemical resistant?
Washable?
Hats & Hoods

- Liquid-proof with a wide brim
- No absorbent materials!
- Chemical-resistant hoods on jackets
Foot Protection
Footwear

- No sandals!
- Consider wearing unlined, rubber boots... even if not required
- Hang pant legs outside the boots!
Lung Protection
Respirators
Prevent pesticide exposure through the respiratory system
Barriers to Wearing PPE (Respirators)

- Cartridges not changed enough/not available
- Medical evaluations: don’t know about and/or don’t know where to go
- Fit-testing: don’t know about and/or don’t know where to go
- Discomfort of respirators.
When should a respirator be used?

- When the label or SDS requires it
- When exposed to spray mist
- When working in confined spaces
- When using dusts, gases, vapors, or fumigants
Respiratory Protection

- Follow the label $\rightarrow$ TC-21C Particulate

- And TC-23C $\rightarrow$

  Chemical cartridge
Filter selection-OV not appropriate for dusts
Fit check before each use!

- **Positive pressure check:**
  Put hand over exhalation valve and **exhale gently.** If there is pressure in the mask, it’s a good fit.
Fit check before each use!

- **Negative pressure check:** Cover cartridges with hands, **inhale** gently, and hold breath for 10 seconds. If the facepiece exhibits no leakage, the respirator fits properly.

- **Facial hair does not allow a respirator to seal!**
I have it and I wear it, but, is it clean?
After each use, remove filters and wash the facepiece.

Store in a tightly-sealed bag in a clean, dry location, not the pesticide storage areas.
Get to Fresh Air Immediately if...

- You smell or taste contaminants
- Your eyes, nose or throat become irritated
- Your breathing becomes difficult
- The air you are breathing becomes uncomfortably warm
- You become nauseous or dizzy
Enclosed Cabs

- Follow the label for PPE in enclosed cabs
- BUT: remove PPE after mixing and before entering cab
- Wash hands
- Have your respirator with you for escape
Clean Up!

- Discard disposables and worn-out items!
- Wash at the end of each day, including gloves and all PPE at the work site
- Launder pesticide clothing
Separate from family clothing

Wash contaminated clothing in hot water with detergent
Laundering Pesticide Contaminated Clothing

- Use heavy-duty liquid detergent for ECs
- Use 2 cycles for moderate to heavy contamination
- Rinse the washer with an “empty load”
Line dry clothing if possible!
Keep all PPE separate from pesticides in storage!!
Resources

orosha.org/subjects/pesticides

Interpretations
07/08/11 Waterless Hand Sanitizer Use in Agriculture
08/02/07 Pesticide labels and eyewash requirements

Program Directives
Local Emphasis Program (LEP): Pesticides

Fact Sheets/Hazard Alerts/Technical Notes
06/27/08 Hazard Alert: Lime sulfur reacts to form deadly hydrogen sulfide gas
01/02/07 Fact Sheet: Chemical storage guidelines - agricultural pesticides and chemicals

Publications
Alto: Lea, antes de lavar la ropa que usó mientras usaba pesticidas
Cultivate a safe environment: Smart practices for agriculture workers
EPA Quick Reference Guide to the Worker Protection Standard including all revisions through 2005
Forestry Poster
Pesticide Emphasis Program Annual Report Federal Fiscal Year 2009
Pesticide Emphasis Program Annual Report Federal Fiscal Year 2010
Pesticide Use and Your Personal Protective Equipment (PPE)
Safe practices when working around hazardous agricultural chemicals

Education
Online Courses / Current Workshops

All Printable Class Materials
Pesticide Applicator Credits

Worker Protection Standard
- Workbook
- Instructor guide
Ready to Spray?
Thank you!-any Questions?
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(541) 388-6066
Leilani.monson@oregon.gov