<table>
<thead>
<tr>
<th>Name (print):</th>
<th>Date</th>
<th>Employee’s Initials</th>
<th>Safety &amp; Health Coordinator’s Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department and Unit:</td>
<td>Mm/dd/yyyy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Training / Orientation Description**

**Safety Policy:** The Director of the University Field Laboratories expects all employees to conduct their tasks in the safest manner possible. At no time is any employee to endanger themselves or others in order to complete a task. Personal Protective Equipment and training are provided to each employee to enable safe completion of each job.

Our **goal** is for each employee to achieve excellence in their work by completing all tasks in the safest manner possible.

- MSDS for gasoline
- UFL Hazard Communication training and quiz
- General Information for all UFL employees
- Hazardous material transportation general security awareness (complete the reverse side of this form)
- Concerns and Suggestions form and Supervisory Investigation to employee concerns/ suggestions/ solutions form
- Introduction to the UFL Safety & Health manual
- WPS video [http://www.ag.ndsu.nodak.edu/aginfo/pesticid/wps.htm](http://www.ag.ndsu.nodak.edu/aginfo/pesticid/wps.htm)
- WPS quiz
New And Transfer Employee and Volunteer Safety Orientation

Hazardous Material Transportation General Security Awareness

By completing and submitting this form, I certify I have read and understand the information contained above regarding Hazardous Material Transportation General Security Awareness

First Name ___________________________ Last Name ___________________________
Campus ID ___________________________ Department ___________________________

Initial your unit below

<table>
<thead>
<tr>
<th>UNIT</th>
<th>TELEPHONE NUMBER</th>
<th>Principle Investigator (PI) or Unit Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMWMC</td>
<td>919.515.9577</td>
<td>CARM PARKHURST</td>
</tr>
<tr>
<td>BBCFL</td>
<td>919.471.6872</td>
<td>DEAN ASKEW</td>
</tr>
<tr>
<td>BEU</td>
<td>513.7287</td>
<td>RICK KERN</td>
</tr>
<tr>
<td>CEU</td>
<td>515.2740</td>
<td>TERRY REYNOLDS</td>
</tr>
<tr>
<td>DEU</td>
<td>515.2674</td>
<td>ANTHONY CHESNUTT</td>
</tr>
<tr>
<td>EEU</td>
<td>515.3049</td>
<td>LAWSON WALSTON</td>
</tr>
<tr>
<td>FARM CREW</td>
<td>515.5346</td>
<td>CHAD CARTER/ SANDY KEA</td>
</tr>
<tr>
<td>FEEDMILL</td>
<td>513.0972</td>
<td>CARL WHISENANT</td>
</tr>
<tr>
<td>FISH BARN</td>
<td>919.513.2106</td>
<td>DENNIS DELONG</td>
</tr>
<tr>
<td>LANDSCAPING</td>
<td>513.7515</td>
<td>BILL WHALEY</td>
</tr>
<tr>
<td>MRGFL</td>
<td>515.2642</td>
<td>NEAL ROBERTSON</td>
</tr>
<tr>
<td>MEU</td>
<td>851.1803</td>
<td>TABATHA WILSON</td>
</tr>
<tr>
<td>FIELD OPERATIONS</td>
<td>513.7515</td>
<td>CURTIS POWELL</td>
</tr>
<tr>
<td>PAFL</td>
<td>919.322.4054</td>
<td>ANDY MCGINTY</td>
</tr>
<tr>
<td>POULTRY – OFFICE</td>
<td>515.7130</td>
<td>BILL STUART</td>
</tr>
<tr>
<td>SEU</td>
<td>515.2750</td>
<td>CLAY BYRD</td>
</tr>
<tr>
<td>SHOP</td>
<td>515.5346</td>
<td>JOHN MCLAMB</td>
</tr>
<tr>
<td>SREU</td>
<td>851.2940</td>
<td>BILL KNOX</td>
</tr>
<tr>
<td>TEU</td>
<td>515.3446</td>
<td>STEPHEN HOCUTT</td>
</tr>
<tr>
<td>TURFGRASS</td>
<td>608.9036</td>
<td>APRIL BAUDER</td>
</tr>
<tr>
<td>UFL – OFFICE</td>
<td>515.2823</td>
<td>REID EVANS</td>
</tr>
<tr>
<td>WILLIAMSDALE FIELD LABORATORY</td>
<td>919.830.2633</td>
<td>JOHN GARNER</td>
</tr>
</tbody>
</table>
HAZARD COMMUNICATION STANDARD
“RIGHT-TO-KNOW” LAW

OSHA 1910.1200

This law describes how employers must ensure their employee’s right to know about the physical and health hazards of the chemicals in the workplace.

Occupational Safety and Health Administration (OSHA)
Federal Agency for many states and territories

However,
State Agency is in charge in NC
North Carolina Department of Labor Division of Occupational Safety and Health (NC DOL Div OSH)
The best way to remember hazards of chemicals

• Annual training for UFL employees that is appropriate for the chemicals used

Why is this a good idea?
Training reminds you of the hazards that are associated with the chemicals that you use.

COMMONLY USED HAZARDOUS CHEMICALS

• Acids
• Adhesives
• Caustics
• Cleaning Agents
• Degreasing Agents
• Disinfectants
• Dusts
• Glues
• Greases
• Inks
• Lacquers
• Paints
• Pesticides*
• Petroleum products
• Sanitizers
• Sealers
• Solders
• Thinners
• Wood Preservatives
The UFL Hazard Communication Policy

- Is a written policy (section 14)
- Is stored with a copy of the Hazard Communication standard in areas accessible to all employees.
- Specifies:
  - Who is in charge
  - Why and how to label containers
  - Protection measures
  - Ways to detect presence or leaks of hazardous chemicals
  - Material Safety Data Sheets (MSDSs).

**Physical**
- **Combustible liquid**
- **Compressed gas**
- **Explosives**
- **Flammables**
- **Organic peroxide** form peroxides in presence of atmospheric oxygen and sometimes ultraviolet light; peroxides can form spontaneously in some materials. Hydrogen Peroxide and Benzoyl Peroxide are organic peroxides, but at rates sold to consumers it does not form explosive products. Other oxidizers such as Acetone Peroxide and Diethyl Ether Peroxide are highly dangerous.
- **Oxidizers (start or enable combustion)**
- **Pyrophoric, unstable (reactive)**
- **Water-reactive**

**Health**
- **Carcinogens**
- **Corrosives**
- **Mutagens** – change DNA in cells; somatic and germ
- **Teratogens** – affect fetus, if present
- **Irritants** (cause reversible inflammatory effects on tissues)
- **Sensitizer** (causes large numbers of people to develop allergic reactions to it and other chemicals)
- **Target Organs**
  - Liver
  - Heart
  - Lungs
  - Nerves
All containers must be labeled to protect everyone who enters the work area

- Labeling is not a problem when containers are new
- Labeling becomes a problem when
  1. Labels on aging containers become torn, scuffed, faded or smeared
  2. Contents of large containers are poured into secondary containers.

All containers must be labeled to protect everyone who enters the work area

- Many organizations require labels for hazardous materials;
  - **US-EPA (NCDA & CS)** requires labels on registered pesticides
  - **NCDOL Division of OSH** requires labels on all chemicals in the workplace
Minimum Information Required by NCDA & CS on a Pesticide Container

- Common name of product (common name of Roundup is glyphosate)
- Amount of active ingredient (%)
- EPA registration number (specific to manufacturer and product)
- Signal Word (Danger, Warning, Caution)
- Use (restricted or not) Example below

Restricted Use

_Due to ground and surface water concerns. For retail sale to and use only by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator’s certification_

Pesticide Label Must Provide the Following:

<table>
<thead>
<tr>
<th>Product</th>
<th>COMMON NAME</th>
<th>% or LBS. A.I.</th>
<th>EPA REGIS. #</th>
<th>SIGNAL WORD</th>
<th>RESTRICTED USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundup Original</td>
<td>glyphosate</td>
<td>41%</td>
<td>524-445</td>
<td>warning</td>
<td>no</td>
</tr>
<tr>
<td>Gly Star Original</td>
<td>glyphosate</td>
<td>41%</td>
<td>42750-60</td>
<td>caution</td>
<td>no</td>
</tr>
<tr>
<td>Roundup Pro Concentrate</td>
<td>glyphosate</td>
<td>50.2%</td>
<td>524-529</td>
<td>caution</td>
<td>no</td>
</tr>
<tr>
<td>Gly Star Plus</td>
<td>glyphosate</td>
<td>41%</td>
<td>42750-61</td>
<td>caution</td>
<td>no</td>
</tr>
</tbody>
</table>
Minimum Information Required by NC DOL Div OSH (Non-pesticide Container)

**ORIGINAL LABEL:**
- Name of product
- Manufacturer’s name & address
- Hazards
- Signal Word (Danger, Warning, Caution)

**TEMPORARY LABEL:**
- Name of product
- Hazards

NFPA label is for emergency response and fire fighters. Hazard rating is from 0 (no hazard) to 4 (extremely hazardous).

Flammability (flash points)
- 0 = Will not burn
- 1 = above 200 degrees F
- 2 = Between 100-200 degrees F
- 3 = Below 100 degrees F
- 4 = Flash point below 73 degrees F

Health
- 0 = Normal
- 1 = Slightly Hazardous
- 2 = Mod. Hazardous
- 3 = Extremely Hazardous
- 4 = Deadly

Material

Reactivity
- 0 = Stable
- 1 = Unstable if heated
- 2 = Violent
- 3 = Shock/heat may detonate
- 4 = Rapidly capable of detonation or explosion

Specific Hazard
- ACID - acid
- ALK - alkali
- COR - corrosive
- OX - oxidizer
- P - polymerization
- W - Use no water
Protective Measures

- Less Toxic Chemicals
- Spill Containment
- Purchase Small Quantities
- Determine what PPE is REQUIRED
  - Material Safety Data Sheets for Hazardous Chemicals
  - OR the container label for pesticides
- Reduce Physical Contact by using PPE, may include
  - boots -- chemically resistant suits
  - gloves -- goggles/ faceshields
  - aprons -- respirators
Ways to detect presence or leaks of hazardous chemicals

• UFL stores small amounts of many chemicals. No automatic audible or visual warnings to warn employees
• Our senses are our early warning systems.
• EYES: - Wet spots or dry spills
• NOSE - WARNING NEVER RELY ON THE SENSE OF SMELL !!!
• EARS - Listen for
  – Drips, Gushes
  – Hisses
• Call your supervisor immediately!
• Stay away from a spill unless you know that the chemical will not hurt you and you can see the entire scene from a safe distance.

Material Safety Data Sheets (MSDSs)

– Available to all employees on all shifts
– Required For All Chemicals Used
– Must maintain a Master List (table of contents)
– Units must advise employees of all new and updated MSDSs
– Trade secrets

**MSDSs should be reviewed before initial use…..**

**Why? Because.....................**
SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

CHEVRON REGULAR UNLEADED GASOLINE

Product Number(s): CPS201000 [See Section 16 for Additional Product Numbers]
Synonyms: Calco Regular Unleaded Gasoline

Company Identification
Chevron Products Company
Marketing, MSDS Coordinator
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency
ChevronTexaco Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information
Technical Information: (510) 242-5357

SPECIAL NOTES: This MSDS applies to: Federal Reformulated Gasoline, California Reformulated Gasoline, Wintertime Oxygenated Gasoline, Low RVP Gasoline and Conventional Gasoline.

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>COMPONENTS</th>
<th>CAS NUMBER</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline</td>
<td>86290-81-5</td>
<td>100 % volume</td>
</tr>
<tr>
<td>Benzene</td>
<td>71-43-2</td>
<td>0.1 - 4.9 % volume</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>100-41-4</td>
<td>0.1 - 3 % volume</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>0.1 - 2 % volume</td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>0 - 10 % volume</td>
</tr>
<tr>
<td>Methyl tert-butyl ether (MTBE)</td>
<td>1634-04-4</td>
<td>0 - 15 % volume</td>
</tr>
<tr>
<td>Tertiary amyl methyl ether (TAME)</td>
<td>994-05-8</td>
<td>0 - 17 % volume</td>
</tr>
<tr>
<td>Ethyl tert-butyl ether (ETBE)</td>
<td>637-92-3</td>
<td>0 - 18 % volume</td>
</tr>
</tbody>
</table>

Motor gasoline is considered a mixture by EPA under the Toxic Substances Control Act (TSCA). The refinery streams used to blend motor gasoline are all on the TSCA Chemical Substances Inventory. The appropriate CAS number for refinery blended motor gasoline is 86290-81-5. The product specifications of motor gasoline sold in your area will depend on applicable Federal and State regulations.

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
- EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE
- HARMFUL OR FATAL IF SWALLOWED - MAY CAUSE LUNG DAMAGE IF SWALLOWED
- VAPOR HARMFUL
- CAUSES SKIN IRRITATION
- CAUSES EYE IRRITATION
- LONG-TERM EXPOSURE TO VAPOR HAS CAUSED CANCER IN LABORATORY ANIMALS
- KEEP OUT OF REACH OF CHILDREN
- TOXIC TO AQUATIC ORGANISMS
IMMEDIATE HEALTH EFFECTS

**Eye:** Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision.

**Skin:** Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

**Ingestion:** Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.

**Inhalation:** The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELAYED OR OTHER HEALTH EFFECTS:

**Reproduction and Birth Defects:** This material is not expected to cause birth defects or other harm to the developing fetus based on animal data.

**Cancer:** Prolonged or repeated exposure to this material may cause cancer. Gasoline has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Risk depends on duration and level of exposure. See Section 11 for additional information.

SECTION 4 FIRST AID MEASURES

**Eye:** Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.

**Skin:** Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

**Inhalation:** Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

**Note to Physicians:** Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

**FIRE CLASSIFICATION:**


**NFPA RATINGS:** Health: 1 Flammability: 3 Reactivity: 0

**FLAMMABLE PROPERTIES:**

**Flashpoint:** (Tagliabue Closed Cup) < -45 °C (< -49 °F)

**Autoignition:** > 280 °C (> 536 °F)

**Flammability (Explosive) Limits (% by volume in air):** Lower: 1.4 Upper: 7.6
EXTINGUISHING MEDIA: Dry Chemical, CO2, AFFF Foam or alcohol resistant foam if >15% volume polar solvents (oxygenates).

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: Use water spray to cool fire-exposed containers and to protect personnel. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparkling tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required. This material is covered by EPA's Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Petroleum Exclusion. Therefore, releases to the environment may not be reportable under CERCLA.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Never siphon gasoline by mouth.
Use only as a motor fuel. Do not use for cleaning, pressure appliance fuel, or any other such use. Do not store in open or unlabeled containers. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling. Keep out of the reach of children.
Unusual Handling Hazards: WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating an accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'. Improper filling of portable gasoline containers creates danger of fire. Only dispense gasoline into approved and properly labeled gasoline containers. Always place portable containers on the ground. Be sure pump nozzle is in contact with the container while filling. Do not use a nozzle's lock-open device. Do not fill portable containers that are inside a vehicle or truck/trailer bed.

General Storage Information: DO NOT USE OR STORE near heat, sparks or open flames. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.
SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the workplace when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.
Respiratory Protection: Determine if airborne concentrations are below the recommended exposure limits. If not, wear an approved respirator that provides adequate protection from measured concentrations of this material, such as: Air-Purifying Respirator for Organic Vapors.
When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit</th>
<th>TWA</th>
<th>STEL</th>
<th>Ceiling</th>
<th>Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>ACGIH_TLV</td>
<td>.5 ppm</td>
<td>2.5 ppm</td>
<td></td>
<td>Skin A1</td>
</tr>
<tr>
<td>Benzene</td>
<td>OSHA_PEL</td>
<td>1 ppm</td>
<td>5 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzene</td>
<td>OSHA_Z2</td>
<td>10 ppm</td>
<td></td>
<td>25 ppm</td>
<td>A4</td>
</tr>
<tr>
<td>Ethanol</td>
<td>ACGIH_TLV</td>
<td>1000 ppm</td>
<td></td>
<td></td>
<td>A4</td>
</tr>
<tr>
<td>Ethanol</td>
<td>OSHA_PEL</td>
<td>1000 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>ACGIH_TLV</td>
<td>100 ppm</td>
<td>125 ppm</td>
<td>A3</td>
<td></td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>OSHA_PEL</td>
<td>100 ppm</td>
<td>125 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethyl tert-butyl ether (ETBE)</td>
<td>ACGIH_TLV</td>
<td>5 ppm</td>
<td></td>
<td></td>
<td>A3</td>
</tr>
<tr>
<td>Gasoline</td>
<td>ACGIH_TLV</td>
<td>300 ppm</td>
<td>500 ppm</td>
<td>A3</td>
<td></td>
</tr>
<tr>
<td>Gasoline</td>
<td>OSHA_PEL</td>
<td>300 ppm</td>
<td>500 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methyl tert-butyl ether (MTBE)</td>
<td>ACGIH_TLV</td>
<td>50 ppm</td>
<td></td>
<td>A3</td>
<td></td>
</tr>
<tr>
<td>Naphthalene</td>
<td>ACGIH_TLV</td>
<td>10 ppm</td>
<td>15 ppm</td>
<td>Skin A4</td>
<td></td>
</tr>
<tr>
<td>Naphthalene</td>
<td>OSHA_PEL</td>
<td>10 ppm</td>
<td>15 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary amyl methyl ether (TAME)</td>
<td>CHEVRON</td>
<td></td>
<td>50 ppm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Refer to the OSHA Benzene Standard (29 CFR 1910.1028) and Table Z-2 for detailed training, exposure monitoring, respiratory protection and medical surveillance requirements before using this product.
SECTION 9  PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

**Color:** Colorless to yellow  
**Physical State:** Liquid  
**Odor:** Petroleum odor  
**pH:** NA  
**Vapor Pressure:** 5 psi - 15 psi (Typical) @ 37.8°C (100°F)  
**Vapor Density (Air = 1):** 3 - 4 (Typical)  
**Boiling Point:** 37.8°C (100°F) - 204.4°C (400°F) (Typical)  
**Solubility:** Insoluble in water; miscible with most organic solvents.  
**Freezing Point:** NA  
**Melting Point:** NA  
**Specific Gravity:** 0.7 g/ml - 0.8 g/ml @ 15.6°C (60.1°F)  
**Viscosity:** <1 SUS @ 37.8°C (100°F)

SECTION 10  STABILITY AND REACTIVITY

**Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.  
**Incompatibility With Other Materials:** May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.  
**Hazardous Decomposition Products:** None known (None expected)  
**Hazardous Polymerization:** Hazardous polymerization will not occur.

SECTION 11  TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

**Eye Irritation:** The Draize eye irritation mean score in rabbits for a 24-hour exposure was: 0/110.  
**Skin Irritation:** For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 4.8/8.0.  
**Skin Sensitization:** This material did not cause sensitization reactions in a Modified Buehler guinea pig test.  
**Acute Dermal Toxicity:** 24 hour(s) LD50: >3.75g/kg (rabbit).  
**Acute Oral Toxicity:** LD50: >5 ml/kg (rat)  
**Acute Inhalation Toxicity:** 4 hour(s) LD50: >2000ppm (rat).

ADDITIONAL TOXICOLOGY INFORMATION:

Gasolines are highly volatile and can produce significant concentrations of vapor at ambient temperatures. Gasoline vapor is heavier than air and at high concentrations may accumulate in confined spaces to present both safety and health hazards. When vapor exposures are low, or short duration and infrequent, such as during refuelling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapor is potentially high, attention should be paid to potential toxic effects of specific components. Information about specific components in gasoline can be found in Sections 2, 8 and 15 of this MSDS. More detailed information on the health hazard of specific gasoline components can be obtained calling the Chevron Emergency Information Center (see Section 1 for phone numbers).

NEUROTOXICITY: Pathological misuse of solvents and gasoline, involving repeated and prolonged exposure to high concentrations of vapor is a significant exposure on which there are many reports in the medical literature. As with other solvents, persistent abuse involving repeated and prolonged exposures to high concentrations of vapor has been reported to result in central nervous system damage and eventually, death. In a study in which ten human volunteers were exposed for 30 minutes to approximately 200, 500 or 1000 ppm concentrations of gasoline vapor, irritation of the eyes was the only significant effect observed, based on both subjective and objective assessments. In an inhalation study, groups of 6 Fischer rats (3 male, 3 female) were exposed to 2056 ppm of wholly vaporized unleaded gasoline for 6 hours per day, 5 days per week for up to 18 months. Histopathology of the peripheral nervous system and spinal cord revealed no distal axonal neuropathy of the type associated with exposure to n-hexane even though gasoline contained 1.9% n-hexane. The authors concluded that gasoline treatment may have amplified the incidence and prominence of some naturally occurring age-related (subclinical) in the nervous system. BIRTH DEFECTS AND REPRODUCTIVE TOXICITY: An inhalation study with rats exposed to 0, 400 and 1600 ppm of wholly vaporized unleaded gasoline, 6 hours per day on day 6 through 16 of gestation, showed no teratogenic effects nor indication of toxicity to either the...
mother or the fetus. Another inhalation study in rats exposed to 3000, 6000, or 9000 ppm of gasoline vapor, 6 hours per day on day 6 through 20 of gestation, also showed no teratogenic effects nor indications of toxicity to either the mother or the fetus.

CHRONIC TOXICITY/CANCER: Wholly vaporized unleaded gasoline was used in a 3 month inhalation study. Groups of 40 rats (20 males, 20 female) and 8 squirrel monkeys (4 male, 4 female) were exposed 6 hours per day and 5 days per week for 13 weeks to 384 or 1552 ppm gasoline. One group of each species served as unexposed controls. The initial conclusion of this study was that inhalation of gasoline at airborne concentrations of up to 1522 ppm caused no toxicity in rats or monkeys. However, further histopathological examination of male rat kidneys on the highest dose group revealed an increased incidence and severity of regenerative epithelium and dilated tubules containing proteinaceous deposits. Lifetime inhalation of wholly vaporized unleaded gasoline at 2056 ppm has caused increased liver tumors in female mice. The mechanism of this response is still being investigated but it is thought to be an epigenetic process unique to the female mouse.

This exposure also caused kidney damage and eventually kidney cancer in male rats. No other animal model studied has shown these adverse kidney effects and there is no physiological reason to believe that they would occur in man. EPA has concluded that mechanism by which wholly vaporized unleaded gasoline causes kidney damage is unique to the male rat. The effects in that species (kidney damage and cancer) should not be used in human risk assessment. In their 1988 review of carcinogenic risk from gasoline, The International Agency for Research on Cancer (IARC) noted that, because published epidemiology studies did not include any exposure data, only occupations where gasoline exposure may have occurred were reviewed. These included gasoline service station attendants and automobile mechanics. IARC also noted that there was no opportunity to separate effects of combustion products from those of gasoline itself. Although IARC allocated gasoline a final overall classification of Group 2B, i.e. possibly carcinogenic to humans, this was based on limited evidence in experimental animals plus supporting evidence including the presence in gasoline of benzene and 1, 3-butadiene. The actual evidence for carcinogenicity in humans was considered inadequate.

MUTAGENICITY: Gasoline was not mutagenic, with or without activation, in the Ames assay (Salmonella typhimurium), Saccharomyces cerevisaeae, or mouse lymphoma assays. In addition, point mutations were not induced in human lymphocytes. Gasoline was not mutagenic when tested in the mouse dominant lethal assay. Administration of gasoline to rats did not cause chomosomal aberrations in their bone marrow cells. EPIDEMIOLOGY: To explore the health effects of workers potentially exposed to gasoline vapors in the marketing and distribution sectors of the petroleum industry, the American Petroleum Institute sponsored a cohort mortality study (Publication 4555), a nested case-control study (Publication 4551), and an exposure assessment study (Publication 4552). Histories of exposure to gasoline were reconstructed for cohort of more than 18,000 employees from four companies for the time period between 1946 and 1985. The results of the cohort mortality study indicated that there was no increased mortality from either kidney cancer or leukemia among marketing and marine distribution employees who were exposed to gasoline in the petroleum industry, when compared to the general population. More importantly, based on internal comparisons, there was no association between mortality from kidney cancer or leukemia and various indices of gasoline exposure. In particular, neither duration of employment, duration of exposure, age at first exposure, year of first exposure, job category, cumulative exposure, frequency of peak exposure, nor average intensity of exposure had any effect on kidney cancer or leukemia mortality. The results of the nested case-control study confirmed the findings of the original cohort study. That is, exposure to gasoline at the levels experienced by this cohort of distribution workers is not a significant risk factor for leukemia (all cell types), acute myeloid leukemia, kidney cancer or multiple myeloma.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
The 96 hour(s) LC50 for rainbow trout (Oncorhynchus mykiss) is 2.7 mg/l. The 48 hour(s) LC50 for water flea (Daphnia magna) is 3.0 mg/l. The 96 hour(s) LC50 for sheepshead minnow (Cyprinodon variegatus) is 8.3 mg/l. The 96 hour(s) LC50 for mysid shrimp (Mysidopsis bahia) is 1.8 mg/l. This material is expected to be toxic to aquatic organisms. Gasoline studies have been conducted in the laboratory under a variety of test conditions with a range of fish and invertebrate species. An even more extensive database is available on the aquatic toxicity of individual aromatic constituents. The majority of published studies do not identify the type of gasoline evaluated, or even provide distinguishing characteristics such as aromatic content or presence of lead alkyls. As a result, comparison of results among studies using open and closed vessels, different ages and species of test animals and different gasoline types, is difficult.
The bulk of the available literature on gasoline relates to the environmental impact of monoaromatic (BTEX) and diaromatic (naphthalene, methylnaphthalenes) constituents. In general, non-oxygenated gasoline exhibits some short-term toxicity to freshwater and marine organisms, especially under closed vessel or flow-through exposure conditions in the laboratory. The components which are the most prominent in the water soluble fraction and cause aquatic toxicity, are also highly volatile and can be readily biodegraded by microorganisms.

ENVIRONMENTAL FATE
This material is expected to be readily biodegradable. Following spillage, the more volatile components of gasoline will be rapidly lost, with concurrent dissolution of these and other constituents into the water. Factors such as local environmental conditions (temperature, wind, mixing or wave action, soil type, etc), photo-oxidation, biodegradation and adsorption onto suspended sediments, can contribute to the weathering of spilled gasoline.

The aqueous solubility of non-oxygenated unleaded gasoline, based on analysis of benzene, toluene, ethylbenzene+xylennes and naphthalene, is reported to be 112 mg/l. Solubility data on individual gasoline constituents also available.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Name: GASOLINE
DOT Hazard Class: 3 (Flammable Liquid)
DOT Identification Number: UN1203
DOT Packing Group: II

SECTION 15 REGULATORY INFORMATION

SARA 311/312 CATEGORIES:

1. Immediate (Acute) Health Effects: YES
2. Delayed (Chronic) Health Effects: YES
3. Fire Hazard: YES
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

4._I1=IARC Group 1
4._I2A=IARC Group 2A
4._I2B=IARC Group 2B
05=NTP Carcinogen
06=OSHA Carcinogen
09=TSCA 12(b)
15=SARA Section 313
16=CA Proposition 65
17=MA RTK
18=NJ RTK
19=DOT Marine Pollutant
20=PA RTK

The following components of this material are found on the regulatory lists indicated.

Benzene: 15, 16, 17, 18, 20, 4._I1, 5, 6
Ethanol: 17, 18, 20
Ethyl benzene: 15, 17, 18, 20, 4._I2B
Gasoline: 17, 18, 20
Methyl tert-butyl ether (MTBE): 15, 17, 18, 20, 9
Naphthalene: 15, 16, 17, 18, 20, 4._I2B
Tertiary amyl methyl ether (TAME): 9

CERCLA REPORTABLE QUANTITIES(RQ)/SARA 302 THRESHOLD PLANNING QUANTITIES(TPQ):
<table>
<thead>
<tr>
<th>Component</th>
<th>Component RQ</th>
<th>Component TPQ</th>
<th>Product RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>10 lbs</td>
<td>None</td>
<td>186 lbs</td>
</tr>
<tr>
<td>Ethanol</td>
<td>100 lbs</td>
<td>None</td>
<td>1961 lbs</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>1000 lbs</td>
<td>None</td>
<td>4964 lbs</td>
</tr>
<tr>
<td>Methyl tert-butyl ether</td>
<td>1000 lbs</td>
<td>None</td>
<td>7513 lbs</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>100 lbs</td>
<td>None</td>
<td>4000 lbs</td>
</tr>
</tbody>
</table>

**CHEMICAL INVENTORIES:**
CANADA: All the components of this material are on the Canadian DSL or have been notified under the New Substance Notification Regulations, but have not yet been published in the Canada Gazette.
UNITED STATES: All of the components of this material are on the Toxic Substances Control Act (TSCA) Chemical Inventory.

**WHMIS CLASSIFICATION:**
Class B, Division 2: Flammable Liquids
Class D, Division 2, Subdivision A: Very Toxic Material - Carcinogenicity
Class D, Division 2, Subdivision B: Toxic Material - Skin or Eye Irritation

**SECTION 16 OTHER INFORMATION**

**NFPA RATINGS:**
Health: 1 Flammability: 3 Reactivity: 0

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE: Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

**Additional Product Number(s):**

**REVISION STATEMENT:** This revision updates the following sections of this Material Safety Data Sheet: Section 1 (Product Codes). This Material Safety Data Sheet has been prepared using the ProSteward MSDS system.

**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**
TLV - Threshold Limit Value
STEL - Short-term Exposure Limit
TWA - Time Weighted Average
PEL - Permissible Exposure Limit
CAS - Chemical Abstract Service Number
NDA - No Data Available
<= - Less Than or Equal To
>= - Greater Than or Equal To

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the ChevronTexaco Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.
ADA.

If employee currently has or ever develops a disability or condition whether it is temporary (e.g., broken leg) or permanent, he/she can contact the NC State Fire Marshal at 515.2568 to develop a confidential, individualized evacuation plan.

1. **Fire Evacuation Procedure for animal units. Only 1 unit has an approved evacuation plan - BBCFL**
   - Students who are employed at animal units are forbidden to assist with livestock evacuations from or near a burning structure.
   - SPA (fulltime) employees may voluntarily assist with livestock evacuations if and only if
     - An approved animal evacuation procedure exists for the unit
     - The manager-in-charge has made a decision that livestock in or near a burning structure can safely be evacuated.
     - At any time during the evacuation each SPA employee has the ability to halt livestock evacuations to ensure personal safety.
     - If the manager has decided that an evacuation is not possible and should not be attempted, then any SPA who attempts a livestock evacuation will be subject to disciplinary action.
   - All SPA, temporary and student employees, will remain at the assembly point. They must identify themselves to the attending fire department as soon as they appear on the scene and can not leave until they have permission to do so.

2. **Medical Information.**
   The privacy of employee medical information is covered under the Health Insurance and Portability Accountability Act (HIPAA). Student employees are covered by this Act only during the hours they are working for NC State.
   
The privacy of student medical information is covered under the Family Education Rights and Privacy Act (FERPA). Student employees are covered by this Act whenever they are not working for NC State. **EPA, SPA and student employees.** Some tasks that you perform require that you receive medical surveillance to monitor your health while you work for NC State University. For instance, you may need a hearing test if you are working in a noisy area. If you work with animals you must complete and submit the Animal Handlers Confidential Medical Questionnaire to Student Health Services. You may be required to participate in additional medical surveillance programs because of other tasks that you complete. These medical surveillance tests are usually conducted by Student Health Services and they are covered by HIPAA. You must sign a release stating that NC State can share your records before you can obtain medical surveillance testing as an employee. You must give permission so that your information can be seen by individuals who input your data, or who work in billing or insurance. Your right to confidentiality is superceded when required by law (public health, domestic violence, crime, subpoena, etc.). A copy of the HIPAA policy is located in section 13 of the UFL Safety and Health Manual. You will receive detailed training regarding your rights under HIPAA during annual training on the access to medical records. For more information, contact the University's Privacy Officer at 919.515.6122.

3. **Unlawful Workplace Harassment.** Harassment is unwelcome conduct that is either a condition of working or learning or creates a hostile environment. Unlawful harassment can be physical or verbal, explicit or implied and it is usually severe or pervasive; it is also based on a protected class. The following protected classes are recognized by federal, state and/or university laws and polices: (FEDERAL Law) Race, national origin, religion, age, color, sex, disability, veteran status, (STATE Law) creed and (UNIVERSITY Policy) sexual orientation. Harassment between two individuals that does not fall into any of the classes is still inappropriate conduct and it will not be tolerated.
   
   Allegations of harassment are taken seriously and, if found to be true, may be grounds for dismissal. Treat all individuals with respect, and be particularly careful when talking to employees that you do not know well. By hiring you, the University Field Laboratories has placed trust in your judgment. You will be working unsupervised at times, and this places the burden of responsible, ethical behavior squarely on your shoulders.

   Harassment directed toward certain, protected classes of individuals is illegal. For more information contact the Equal Opportunity Office at 515.3148 or at 513.1234. **VIEW VIDEO**

4. **First Aid and CPR.** All supervisory employees must take CPR every year or every second year, and first aid every 3rd year.

5. **Bloodborne Pathogens.** Exposure to bloodborne pathogens such as HIV/AIDS and Hepatitis B is very unlikely in the work conducted at the Field Labs. If another employee is injured it is your responsibility to protect yourself first. **ALWAYS** treat human blood and body fluids as if they are known to be infectious for bloodborne or other
pathogens. Personal protective equipment (PPE) is the employees' main line of defense against bloodborne pathogens. PPE is provided at no cost to protect employees against such exposure. If you are exposed, immediately remove any garments penetrated by blood or other infectious materials. Wash hands thoroughly with soap and water and contact Student Health Services for further instructions.

6. Accident Reporting

☐ FOR VOLUNTEERS, INTERNS AND ANY UNPAID INDIVIDUAL. Workers' Compensation is not available to unpaid individuals. Each department may have additional injury insurance which is extended to unpaid individuals. The first report of injury form must be completed by the direct supervisor or manager.

☐ FOR PAID EMPLOYEES. You should have received specific instructions on how to respond to emergencies during your orientation with your supervisor. All work related injuries and illnesses, as well as near misses, must be reported to the supervisor as soon as possible. Forms must be completed with assistance from, or by, the supervisor. **NC State Workers' Comp claims begin with a phone call to 515.3000 UNLESS THE MEDICAL SITUATION IS AN EMERGENCY. In this case, call 911.**

☐ BBCFL: Call 575.6561 for local emergency assistance and 919.515.3000 to initiate Workers' Compensation coverage for all medical incidents

☐ For all other units and Field Laboratories

Call 911 local emergency dispatch for assistance and 919.515.3000 to initiate Workers' Compensation coverage for all medical incidents:

☐ EEU
☐ LWRFL – all units
☐ LWRPFL – all units
☐ LWRFL
☐ MEU
☐ MRC
☐ MRGFL
☐ PAFL
☐ RCRFL
☐ SREU
☐ WFL

7. Lockout/ tagout/ electrical safety.

- Sometimes equipment or processes need servicing; when this happens, a lock and/or tag will be placed on the equipment or process to let everyone know that it isn't working properly.
- You must never remove either a tag or a lock on any equipment that you did not lock or tag out. Tags and locks indicate the equipment is out of service and it must not be used.
- If you will be servicing equipment or processes, you will receive additional training so that you can properly perform lockout/ tagout procedures.

8. Ergonomics and safe work procedures.

Office computer stations (if applicable) must accommodate the employee.

- Some lifts will require assistance from another person
- Immediately notify your supervisor if you hurt yourself while lifting
- Proper lifting techniques (lift with legs, not back) must be used
9. **Personal Protective Equipment (PPE)**

Employees must wear all PPE required for their tasks or the locations in which they operate. Employees are assigned some or all of the following re-usable equipment: Respirators, dust filters, canisters, safety glasses, vented or unvented goggles, rubber boots, rubber booties, canvas or leather gloves, chemically resistant gloves, hard hats, ear muffs, face shields, safety harness, and rubber rain suits. Employees may also receive some compensation toward prescription glasses.

Employees will inspect re-usable PPE before each use. Reusable PPE equipment must be sanitized after use. You supervisor will provide you with all materials needed to decontaminate PPE. A bucket filled with warm water and dish detergent should be used for washing and a separate bucket filled with warm water should be used for rinsing. Dry PPE in the sun and maintain in a secured plastic bag in a locker when not in use.

Permanent (EPA, SPA) and temporary employees must purchase safety-toed shoes within one month of hiring. Employees will be re-imbursed for the cost of one pair of steel-toed safety shoes or up to a maximum amount of $75.00 within each twelve month period.

Employees are given full access to disposable PPE which may include ear plugs, disposable gloves, aprons, and chemically resistant or tyvek® suits. Properly discard disposable PPE at the end of the task. Take several pairs of ear plugs with you when you go to the field. This will permit you to use clean earplugs if the current pair becomes soiled. Never place soiled ear plugs back into the ears.

Do not use your own personal PPE without permission from the safety and health coordinator.

10. **Self Propelled Equipment.** Each employee shall observe the following:

- Treat property with respect.
- Never operate equipment if the guards, shields and/or access doors have been removed.
- Never permit riders unless receiving on-the-job-training and the rider is the instructor.
- Equipment is often repaired with the help of one or more employees. Always use caution when starting equipment if other people are nearby.
- Tag damaged equipment with an “out-of-service” or “Do not operate” tag and notify your supervisor immediately.
- Seat belts MUST be used on all self-propelled equipment that has been equipped with a roll over bar (ROB).
- Use equipment properly and as instructed.
- Set brakes, apply the park lock (if available) and turn equipment off whenever you leave it.

11. **Property damage report**

If you damage a vehicle, building or other property, notify your supervisor immediately. Your supervisor will determine whether or not a damage report should be completed.

The following information is taken directly from the North Carolina State Employee Safety and Health Handbook (see G. S. 97-12 N.C.) and can be found in the section entitled *Employee Responsibilities*:

**Use of Alcohol or Illegal Drugs**

Working while impaired by alcohol or illegal drugs is specifically forbidden. Use of prescription drugs, which may affect your alertness or work abilities, must be reported to your supervisor. *(Note: You should consult the Occupational Health Physician at 513.2380 for useful information to provide to your supervisor).*

**Failure of compliance**

Failure to comply with or enforce safety and health rules and regulations may result in disciplinary action up to and including dismissal. Violation of work rules is a job performance issue and shall be dealt with through the job performance disciplinary process.
Hazardous Material Transportation General Security Awareness

NCSU Security Objectives. A significant quantity of hazardous materials (biologicals, chemicals, radioactives) is transported within the NC State University campus on a daily basis. Since hazardous materials can pose a significant security risk to any institution, the U.S. Department of Transportation (DOT) now requires all recipients and shippers of hazardous materials to develop a security plan. The intent of the security plan is to provide an awareness of security risks associated with hazardous materials transportation and ways to enhance transportation security.

Hazardous Materials, as defined by the United States Department of Labor, Occupational Safety and Health Administration Hazardous Communication Standard, are chemicals which are health hazards (such as irritation, sensitization, and carcinogenicity) and/or physical hazards (such as flammability, corrosion, and reactivity). Examples of hazardous materials include: acids, peroxides, combustibles, dry ice. However, other materials are also considered hazardous, including radiological and some biological materials (bacteria, viruses, and blood samples containing pathogens). Strict regulations are enforced on individuals who transport and ship hazardous materials.. Substances considered hazardous materials can be in a pure form or contained in other products such as lasers, detectors, batteries, solutions, and biological samples.

*Hazardous waste is not considered hazardous material.* Hazardous waste is defined as a (1) product, by-product, or other material that is normally discarded after it is removed from the process and is intended for discard; or when it is determined to be of no use any longer. Hazardous waste management is the control of hazardous materials when disposing or discharging into the air, water or soil.

Specific Security Procedures. Controlling access to facilities, properly securing materials while in transit and assuring properly authorized and trained personnel are using, storing and shipping these materials correctly are the three main components of the NC State University Security plan.

Facility Security. Facility security begins with building access. NC State University has implemented campus security procedures, as well as provided card access to specific areas on campus and areas of new construction. For laboratory/research facilities, tenants should keep doors locked when the room is not occupied to reduce unauthorized access to areas that contain hazardous materials. If possible, hazardous materials should be further secured in a storage location, including locking freezer, flammable cabinets or other laboratory storage apparatus. Unauthorized personnel should not be allowed in laboratories without an escort. Campus identification cards are issued to all personnel, thus feel free to ask for identification of any unknown individuals in your area.

En Route Security. Hazardous materials transported on campus roads are subject to certain DOT guidelines. When preparing to transport materials, proper packaging is essential to prevent leaks, accidental spills or exposures. Personnel transporting hazardous materials on campus should minimize exposure to classrooms, dormitories, offices, and other non-technical, public areas by taking less populated paths or roads.

Always secure a vehicle from theft or vandalism when transporting hazardous materials. Materials that are transported on carts or other material handling equipment should be secured against spilling and theft at all times.

Shipping by an outside party, including a courier service, or other private company is a common way to transport hazardous materials. Always verify the identity of the carrier/driver (ask for company identification with a picture) before releasing the materials. Establish a clear understanding of liability with the courier in case of accidents or incidents involving material theft or non-receipt of materials at the destination.

All couriers of hazardous materials must be properly trained in order to comply with DOT regulations for transport. Proper training helps ensure the driver has properly blocked and braced the materials; completed all required paperwork and that the paperwork is located with the driver of the vehicle. Training also ensures proper hazard placards are used when transporting certain quantities of materials.

Employee Security. Employee participation with this security plan is vital to its success. Faculty, staff, and students should be aware of their surrounding and any unusual activity. Report all phone and email threats to 911. The following actions of individuals should always be reported:

- Walking around the perimeter of a facility, possibly examining entry points
- Watching vehicles entering and exiting facilities, or watching employee activities
- Appearing to be performing prolonged static surveillance.
- Posing as panhandlers or vendors in order to watch the general operations of the facility.
- Using a camera, video recorders, or taking notes
- Carrying multiple ID's or clothing

Actions to take in the event of a security breach. In the case of suspicious incidents or individuals, accidents or missing hazardous material, contact Campus Police immediately at 911
UNIVERSITY FIELD LABORATORIES

EMPLOYEE SAFETY AND HEALTH

CONCERNS/ SUGGESTION FORM

Location: ____________________________________________________________

Employee's name (print): ___________________________ Date filed: ____________

The reason I have requested this form is to (please circle the correct reason)
1. File a concern
2. File a suggestion/solution

____________________________________________________________________

____________________________________________________________________

Safety and Health Concern:

It is my opinion that the information I have provided represents a potential safety and/or health hazard to myself and others. I request that my concern be investigated. The remediation if any is required will be communicated to me and all other affected personnel as soon as the information is available.

______________________________ Date

Employee's Signature

______________________________ Date

Supervisor's Signature

Safety and Health Suggestion/Solution:

I understand that this potential remediation will be investigated. My suggestion/solution may or may not be used. The results of the investigation will be communicated to me and all other affected personnel as soon as the information is available.

______________________________ Date

Employee's Signature

______________________________ Date

Supervisor's Signature

Date - ____________________
For Supervisor's
Use Only
UNIVERSITY FIELD LABORATORIES

SUPERVISORY INVESTIGATION FORM

Location: ______________________ Date of incident: ____________________________

Supervisor's name (print): ________________________________

Employee or employees involved (if any):

________________________________________________________________________

Nature of the incident:

________________________________________________________________________

Does the situation require remediation? __________________

Why or Why not.

________________________________________________________________________

If remediation is required, how will it be achieved?

________________________________________________________________________

What is the anticipated length of time that will be needed to complete remediation?

________________________________________________________________________

________________________________________________________________________

Supervisor's Signature __________________________ Date ____________
I. Choose the best answer for each question

1. **MSDS stands for**
   A. Material Sheets for Data Safety
   B. Material Safety Data Sheets
   C. Material Shifting Data Sheet

2. **The Hazard Communication policy must be kept**
   A. locked in a supervisor’s desk
   B. in the main office only
   C. in a location that is available to employees

3. **The best time to read an MSDS is**
   A. As soon as an accident occurs
   B. At the hospital
   C. Before you use the material

4. **The red square on the NFPA label and the red bar on the HMIS label both stand for**
   A. Health hazard
   B. Fire hazard
   C. Physical hazard
   D. Special conditions

5. **A carcinogen is**
   A. a chemical that affects heart rate
   B. a chemical that causes cancer
   C. an explosive

6. **MSDSs must be available**
   A. to all employees exposed to chemicals at any time
   B. for first shift workers only
   C. only with permission from a supervisor

7. **The Hazard Communication Standard covers**
   A. All the hazards of the workplace
   B. All physical hazards of the workplace
   C. All health hazards of the workplace
   D. The physical and health hazards of the chemicals in the workplace

8. **The NCDOL Division of OSH Hazard Communication Standard requires that containers be labeled**
   A. Anytime the container will be used for more than a single workday
   B. To inform everyone about the health and/or physical hazards of the contents
   C. both 1 and 2

9. **HMIS stands for**
   A. Hazard Material Information Series
   B. Hazardous Materials Identification System
   C. Hazardous Materials Information System
10. The Hazard Communication policy
   A. Is a written policy
   B. Tells you who to contact with questions about the chemicals in the workplace
   C. Requires that MSDSs be kept in an accessible location
   D. All of the above

11. In order to determine what PPE to wear when handling a pesticide you must:
   A. Read and follow the instructions given on the MSDS
   B. Read and follow the instructions given on the label of the container
   C. Assess the situation and wear whatever seems appropriate to you

Each sentence is either true or false. No trick questions.

a. ____________ Material Safety Data Sheets are an excellent source of information about a chemical.
b. ____________ Containers which hold hazardous chemicals as defined by OSHA must clearly show the name and the hazards of the product.
c. ____________ One important part of a hazard communication program is employee training.
d. ____________ The first aid information provided on the MSDS tells you how the product affects the environment.
e. ____________ You must wear a respirator every time you use a chemical.
f. ____________ Pesticide containers must clearly show the common name, percent active ingredient, EPA registration number, signal word and whether or not the product is labeled as Restricted Use.
g. ____________ One way employees can protect themselves from an unwanted chemical exposure is by wearing appropriate personal protective equipment (PPE).
h. ____________ If you get a chemical in your eyes you should rub your eyes hard to make them feel better.
i. ____________ Physical hazards can affect property as well as individuals.
j. ____________ Employees must be told where the hazard communication policy is located.
k. ____________ A label that is torn and badly faded is fine so long as you can remember what the contents are.
l. ____________ A chemical can be both a physical and a health hazard.
m. ____________ The yellow diamond on the NFPA 704 placard means the same thing as the orange bar on the HMIS label.
n. ____________ The Hazard Communication Standard explains what employers must do to keep their employees safe whenever they must work with hazardous chemicals.
Work Protection Standard Quiz  
Circle the letter for the correct answer

Name: _______________  
Date: _______________

1) What kind of information can you find in the first aid (statement of practical treatment) section?
A  Information about how to protect wildlife and the environment  
B  Information of pesticide storage  
C  What to do if you swallow or inhale the pesticide or get it in your eyes or on your skin  
D  The active ingredients

2) How can pesticides enter your body?
A  Swallow them  
B  Breathe them  
C  Get them in your eyes  
D  All of the above

3) Pesticide residues are pesticides that remain on plants or in the soil or air after application
A  True  
B  False

4) What should you do if you develop signs of pesticide poisoning?
A  Stop what you are doing  
B  Continue working  
C  Follow first aid procedures on the label and have someone drive you to an emergency medical center  
D  Both A & C

5) What should you do if you swallow a pesticide?
A  Continue working  
B  Rest for 15 minutes  
C  Get something cool to drink  
D  Call for help immediately. Follow the directions on the label. If it says to vomit, wash your hands and gag yourself with your finger. If it says to avoid vomiting, do not vomit.

6) If you need emergency medical care you should tell your supervisor and s/he will arrange for transportation to the nearest appropriate medical facility.
A  True  
B  False

7) If a pesticide gets in your eyes you should:  
A  Take a break  
B  Rinse your eyes right away with an eyewash kit or at an eyewash station for at least 15 minutes  
C  Put on goggles  
D  None of the above

8) What is the purpose of personal protective equipment (PPE)?
A  There is no real purpose  
B  To keep pesticides from getting into your body  
C  To meet federal and state regulations  
D  Both B & C

9) How can you reduce the risk of heat stress?
A  Take frequent rest breaks  
B  Drink plenty of liquids  
C  Give yourself time to adjust to the heat  
D  All of the above

10) Why should you avoid mixing, loading, or cleaning equipment near ponds, streams, wells, or ditches?
A  Because it is unsightly  
B  Any material spilled could easily enter and contaminate these water sources.  
C  The water might get into your pesticides and ruin them  
D  Both A & C
11) Drift from your spray rig could kill wildlife
A True
B False

12.) You may take pesticide containers home
A If it is not restricted use
B If you do not have small children
C If it is just a small amount
D Never

13). While you are spraying pesticides, you should be extremely cautious if
A It becomes more windy
B You are spraying near a pond, lake or irrigation ditch
C The ground becomes soft or uneven
D All of the above

14). If pesticides get on your clothes you should
A Take them off and wash them
B Leave them on the rest of the day
C Put them back on when the pesticide dries
D All of the above

15). The most common pesticide formulation is
A Solids
B Gases
C Liquids
D Granules

16). If you feel drift while you are working in a field beside one that is being sprayed your should
A Leave the field immediately
B Move far enough away so that you can not feel the drift
C Work until break time and then go wash it off

17). If you see an area posted with warning signs you should
A Avoid entering the field
B Enter the field and compete your tasks
C Enter the field but only for a few minutes

18). You should wash your hands before you
A Eat or drink
B Chew gum
C Smoke
D All of the above

19). You will begin to feel the acute affects of pesticides
A Within 30 days
B Within 24 hours
C In about 20 years

20). Signs of heat stress include
A Confusion
B Slurred speech
C Nausea
D All of the above

21). Failure to follow the label is
A Always okay
B Is against the law
C All right as long as you get permission first

22). The three C’s you should remember if you have a pesticide spill are
A Cool, calm, collected
B Control, contain, clean up
C Control, call, care