University of Southern Maine
Safety Training

Prepared By:  University Environmental Health & Safety
What Will Be Covered

- Personal Protective Equipment
- Bloodborne Pathogens
- Hazard Communication
- Fall Prevention
- Confined Spaces
- Asbestos Awareness and Control
- Lead Paint Awareness
- Hearing Conservation
- Electrical Safety
- Universal Waste
Purpose: OSHA has determined that workers involved in a wide range of occupational jobs are exposed to a significant risk of death or injury from various objects in the workplace. Therefore, employers are expected to protect employees who could foreseeably be injured by workplace hazards.
Every employee shall use protective gloves in the following situations:

- When working around human body fluids.
- When cleaning bathrooms, water fountains, etc.
- When cleaning sink traps.
- When handling recyclables.
- During rubbish or trash pickups.
- When handling extreme hot or cold temperatures.
- When working with chemical substances.
- When lifting or carrying heavy objects or any item that may have sharp edges.
All employees shall wear eye protection in the following situations:

- Working on stationary machines/equipment.
- Working with power tools.
- When working with chemicals.
- When looking up while working (scraping ceilings, etc.)
- When using toxic substances (mastics, acids, etc.)
- When using compressed air.
- When using grounds maintenance equipment.
- When working with steam.
Personal Protective Equipment – Foot Protection

- Employees shall wear protective footwear at all times.
Hearing Conservation

- Purpose: To provide protection against the effects of noise exposure when employees experience work tasks at noise levels of 85 Db or more.
As a result of noise level findings, selection of hearing protectors will be made for all job tasks exceeding 85 Db (decibels). Hearing protectors will be selected on the attenuation (noise reduction rating) they provide.

- 85 db and under – no hearing protection required.
- 85-95 db – one type of hearing protection required (muffs or plugs).
- 96 db and above – two types of hearing protection required (muffs and plugs).
Bloodborne Pathogens

- Do not clean up any blood or other potentially infectious material (OPIM) unless properly trained to do so.

- Any bodily fluid that cannot be positively identified shall be treated as potentially infectious.

- If you come across blood or OPIM notify your supervisor.

- If properly trained to handle blood or OPIM, proper PPE must be worn.
Responsibilities: Employees

- Comply with requirements of this program and their Department Exposure Control plan.

- Seek prompt first aid or medical attention for exposure incidents.

- Report exposure incidents to their supervisors/department heads.
What are Bloodborne Pathogens?

Microorganisms that are present in human blood and can cause disease in humans.

- Viruses
- Fungus
- Bacteria
- Parasites
- Prions (malformed proteins, mad cow disease)
There are 13 common diseases associated with bloodborne pathogen exposure:

- Human Immunodeficiency Virus
- Hepatitis B Virus
- Hepatitis C Virus
- Syphilis
- Malaria
- Babesiosis
- Brucellosis
- Leptospirosis
- Arboviral Infection
- Relapsing Fever
- CJD
- HTLV-1
- Viral Hemorrhagic Fever
Bloodborne Pathogens Enter the Body Inside:

- Blood and
- Other potentially infectious materials (OPIMs), such as:
  - Body fluids
  - Amniotic fluid
  - Semen
  - Vaginal fluids
Routes of Transmission

- **Skin puncture**
  - Needle-stick or sharp objects
  - Most common in health care workers

- **Broken or non-intact skin**
  - Rashes, hang nails, cuts, punctures, abrasions, acne, cold sores, sunburn

- **Contact with mucous membranes of eyes, nose, and mouth**
  - Spills, splashes, sprays of infectious materials
Protection from Bloodborne Pathogens

- Universal precautions
- Signs and labels used to identify bloodborne pathogens
- Hepatitis B vaccine
Universal Precautions

- A method of exposure control in which all human blood and OPIM are treated as though they are infectious.

- While the blood and OPIM may not be infectious, rather than take the risk, you should always avoid direct contact.
Personal Protective Equipment (PPE)

- Gloves
- Face mask, or face shield
- Goggles
- Lab coat or gown
- Head coverings
- CPR barrier devices
Gloves

- The most important means of protecting yourself from coming into contact with blood or OPIM:
  - **Inspect** to insure that gloves are not defective.
  - **Replace when contaminated** or as soon as feasible.
  - **Do not reuse** disposable gloves.
Gloves

- Cover cuts and sores with a bandage before donning gloves.
- Remove gloves when you leave the work area.
- Dispose of gloves in the medical waste container.
- Wash your hands after you remove your gloves.
Proper Steps for Removing Gloves

1. Fold the cuff of the glove over the hand.
2. Gently pull the glove off the hand, avoiding touching the outside of the glove.
3. Gently pull the glove off the other hand, avoiding touching the outside of the glove.
4. Place the gloves inside the bag provided.
5. Wash hands thoroughly after removing gloves.
6. Dispose of gloves according to facility guidelines.
Personal Protective Equipment (PPE)

- General requirements for handling PPE that must be laundered, cleaned, repaired or replaced:
- Always inspect the condition of PPE before using.
  - Remove PPE when damaged or contaminated and prior to leaving the work area; do not remove PPE from the workplace.
  - Place damaged or contaminated PPE in a designated area or container for cleaning, laundering, repair or disposal.
  - Departments must clean, launder, repair or replace PPE at no cost to the employee/student.
Signs and Labels

BIOHAZARD
Sharps Container
Sharps Containers

- Sharps such as syringes, hypodermic needles and broken glass must **not** be discarded in the trash.
- This ensures that anybody emptying the trash container, such as a custodian, is not injured by the sharp.
- Sharps must be placed in a sharps container.
Disposing of Waste

- Put all contaminated towels and waste in a sealed color-coded or labeled leak-proof container. Dispose of it as regulated waste.
Cleanup kit for Blood/OPIM
Personal Hygiene and Facilities

The following are prohibited in work areas where blood or OPIM may be present:

- Storage of consumption of food and drink items.
- Storage or use of cosmetics, contact lenses, or medications.
Personal Hygiene and Facilities

- **Hand washing** is also critical to reducing the spread of pathogens, therefore:
  - Employees/students are required to wash hands with soap and running water immediately after contact with blood or OPIM, and/or after removing gloves.
  - Hand washing facilities must be made accessible to employees/students.
  - If hand washing facilities are not accessible, hand cleaner may be used as a temporary measure.
Emergency Procedures

- If you get blood or OPIM on your skin or in your eyes:
  - Wash wounds and skin with soap and water for 15 minutes
  - Flush mucous membranes (eyes) with water
- Notify your supervisor of the incident and have an incident form filled out.
- Call University Environmental Health & Safety (5406)
Post-Exposure Follow-up

- An evaluation of the exposure incident to determine risk of infection, also complete the Bloodborne Pathogen Exposure Follow-Up Form available through UEH&S (Appendix C of written program).

- Collection of blood serum and serological testing of the exposed employee/student and source individual (if possible).
Hazard Communication

**Purpose**
- To ensure that the hazard of all chemicals produced are evaluated and that the information is transmitted to employees.

**Accomplished via:**
- Container labeling
- Material Safety Data Sheets (MSDS)
- Employee training
Hazard Communication

- Label all chemicals:
- Have access to written material:
  - MSDS
  - Chemical Hygiene Plan
  - USM Hazard Communication Program
- When handling chemicals, wear the appropriate PPE.
- Know emergency procedures in case of chemical exposure.
Hazards at USM

- HMIS (Hazardous Material Identification System)
  - Numerical hazard rating system.
  - Uses labels with color-coded bars.
  - Not for emergencies, conveys broader health warning information.
  - Has physical hazard bar (orange) rather than reactivity.
Signs and Labels

- Flammable Liquid
- Poison
Material Safety Data Sheets (MSDS)

- A document provided by the manufacturer that contains information on the potential hazards and how to work safely with the chemical product.

- Should be able to provide one to any inspector or person who asks.
SAFETY DATA SHEET

PRODUCT

7260

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 7260
APPLICATION: FUEL TREATMENT

COMPANY IDENTIFICATION:
Nalco Company
1601 W. Diehl Road
Naperville, Illinois 60563-1196

EMERGENCY TELEPHONE NUMBER(S): (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704™/HMS RATING
HEALTH: 1 / 2 FLAMMABILITY: 2 / 2 INSTABILITY: 0 / 0 OTHER:
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme *= Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has identified the following chemical substance(s) as hazardous. Consult Section 15 for the nature of the hazard(s).

<table>
<thead>
<tr>
<th>Hazardous Substance(s)</th>
<th>CAS NO</th>
<th>% (w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethylene Glycol Monobutyl Ether</td>
<td>112-34-5</td>
<td>1.0 - 5.0</td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>1.0 - 5.0</td>
</tr>
<tr>
<td>Magnesium Nitrate</td>
<td>10377-60-3</td>
<td>30.0 - 60.0</td>
</tr>
<tr>
<td>Manganese Nitrate</td>
<td>10377-60-9</td>
<td>1.0 - 5.0</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

"EMERGENCY OVERVIEW"

WARNING
Combustible. Irritating to eyes and skin.
Keep away from heat. Keep away from sources of ignition - No smoking. Keep container tightly closed. Do not get in eyes, on skin, or on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Use a mild soap if available.

Wear suitable protective clothing and gloves. Wear chemical splash goggles. Combustible Liquid; may form combustible mixtures at or above the flash point. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions. Strong oxidizer when water is removed. Combustibilities may catch fire more easily after being wetted by product and dried. May intensify combustion of other materials. Oxidizer; material is an oxidizer which may readily react with other materials, especially upon heating. Materials may ignite spontaneously due to exothermic decomposition of paper, wood, cloth, and other organic materials. Ignition may be rapid, but can be delayed for several hours. Rapid oxygen evolution from decomposition may increase the intensity of a fire. Clothing may ignite on contact.
SAFETY DATA SHEET

PRODUCT
7260

EMERGENCY TELEPHONE NUMER(S)
(800) 426-9300 (24 Hours) CHEMTREC

PRIMARY ROUTES OF EXPOSURE:
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE:

EYE CONTACT:
Can cause moderate irritation.

SKIN CONTACT:
Can cause moderate irritation.

INGESTION:
Not a likely route of exposure. There may be irritation to the gastro-intestinal tract with nausea and vomiting.

INHALATION:
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

AGGRAVATION OF EXISTING CONDITIONS:
A review of available data does not identify any worsening of existing conditions.

HUMAN HEALTH HAZARDS - CHRONIC:
Large amounts of nitrates can cause dizziness, anemia and methemoglobinemia.

4. FIRST AID MEASURES

EYE CONTACT:
Immediately flush eyes with water for at least 15 minutes while holding eyelids open. Get medical attention.

SKIN CONTACT:
Immediately flush with plenty of water for at least 15 minutes. Use a mild soap if available. Get medical attention.

INGESTION:
Get medical attention. Do not induce vomiting without medical advice. If conscious, wash out mouth and give water to drink.

INHALATION:
Remove to fresh air. Treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN:
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT:
167 °F / 75 °C (PMCC)
SAFETY DATA SHEET

PRODUCT
7260

EMERGENCY TELEPHONE NUMBER(S)
(800) 422-9305 (24 Hours) CHEMTREC

STORAGE CONDITIONS
Store in suitable labelled containers. Store the containers tightly closed. Store separately from reducing agents. Store away from organic chemicals and other oxidizable materials, reducing agents, acids and alkalis. Store away from heat and sources of ignition. Use proper grounding procedures.

SUITABLE CONSTRUCTION MATERIAL:
Stainless steel, Polyvinylidene difluoride, PTFE, PVC. Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

UNSUITABLE CONSTRUCTION MATERIAL:
Cast iron, Polypropylene, Polyethylene, ABS plastics (Acrylonitrile-Butadiene-Styrene resin)

6. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS:
Exposure guidelines have not been established for this product. Available exposure limits for the substance(s) are shown below.

<table>
<thead>
<tr>
<th>Substance(s)</th>
<th>Category</th>
<th>ppa</th>
<th>mg/m³</th>
<th>Non-Standard Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>OSHA/NIOSH</td>
<td>1,000</td>
<td>1,800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACGIH/STEL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manganese Compounds (as Mn) as Mn</td>
<td>OSHA/NIOSH</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACGIH/STEL</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ENGINEERING MEASURES:
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne dust and vapor.

RESPIRATORY PROTECTION:
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION:
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION:
Wear standard protective clothing.

EYE PROTECTION:
Wear chemical splash goggles.
製品安全データシート

N1970

[化学物質等および製品情報]
名称: テフロン
製品: N1970

[製造者、販売者] Presentation
製品名: テフロン

[成分、含量情報]
成分および含量

<table>
<thead>
<tr>
<th>成分</th>
<th>含有量(wt%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ゴム</td>
<td>&lt;20</td>
</tr>
<tr>
<td>化学物 # (水分、蓄積物、推奨物)</td>
<td>&gt;50</td>
</tr>
<tr>
<td>テフロンサリシラックス (CAS No.137-58-8)</td>
<td>&lt;1</td>
</tr>
<tr>
<td>輔助物質</td>
<td>&lt;25</td>
</tr>
<tr>
<td>酸化クロム (CAS No.1808-38-9)</td>
<td>&lt;2.1</td>
</tr>
</tbody>
</table>

[危険性および安全] 麼
本製品は、濃度で使用するため、排気ガスの動揺を防ぐことが重要です。特に、温間に接触する場所での使用は避け、環境への影響を最小限に抑えることが重要です。

[急務措置]

目に入った場合: 水で洗浄したあと、医師の診療を受ける。
皮膚に接触した場合: 水で洗い流した後、石鹸でよく洗う。
吸入したとき: 気管支をしゃがむ場所に移り、医師の診療を受ける。
飲み込んだとき: 原来に吐き出させ、医師の診療を受ける。

[火災時の措置]

化学飛行: 焼け、炭化、気化、蒸発

[漏れ時の措置]
通常の状態では漏れがないが、破壊性となって漏れた場合には、防護マスクなどで吸えないように注意し、クエン酸を用い注意して廃棄する。

[取り扱いおよび保管上の注意]
取り扱い: 火気注意
保管: 火気注意、涼暗所保管
Labeling

- Manufacture label
  - Chemical name
  - Appropriate warnings.
  - Name and address of manufacturer.

- In-house label
  - Chemical name
  - Appropriate warnings
Spill Response

- If a chemical spill occurs, contact your supervisor immediately.
- Do not attempt to clean a chemical spill yourself.
Fall Prevention

- **Purpose:** Fall prevention is a system aimed at eliminating injury potential for employees who work in situations where they could lose their balance and slip, trip, or fall from an elevated location.
Fall Prevention
Proper procedures while using ladders are as follows:

- Inspect the ladder for defects.
- Read instruction label.
- Position on a stable base, have someone hold the ladder when there is a question as to possible walk.
- Do not over extend in height.
- Secure top and bottom when possible or use spotter.
Fall Prevention

- Conduct ongoing equipment maintenance and inspections.
Fall Prevention - Ladders

Proper procedures while using ladders are as follows:

• Any climbing over 20’ will require two people.

• Use the 4 to 1 principal (75°).

• Secure 31” over roof or walking surface if there is a possibility of kicking out.

• Always have both hands free, haul materials up and down with a rope line/mechanical device.

• Never over reach.
Fall Prevention – Ladder Safety
Avoiding Back Injury

➢ To avoid injuring your back, always lift with your legs not with your back.
Confined Spaces

Definition: A space that is...

- Large enough and so configured that an employee can bodily enter it and perform the assigned work.
- It must have limited or restricted means for entry or exit.
- It much not be designated for continuous occupancy.
There Are Two Types of Confined Spaces:

- **Non-Permit Required Confined Spaces** do not contain, or, with respect to atmospheric hazards, does not have the potential to contain any hazards capable of causing death or serious physical harm. Examples include attics, crawlspace, etc.

- **Permit Required Confined Spaces** have one or more of the following characteristics:
  - Contains or has a known potential to contain a hazardous atmosphere.
  - May contain a material with the potential for engulfment of an entrant.
  - Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross-section, or
  - Contains any other recognized serious safety or health hazard (high voltage, steam, etc.).

Examples include Underground vaults, Tanks, Manholes, Pits, Pressure Vessels, and Pipelines.
Permit Required Confined Space Hazards:

- Flammable/Explosive Atmosphere (fuel, ignition, oxygen)
- Oxygen Deficiency (acceptable between 19.5% and 23%)
- Toxic/Asphyxiating Gases (i.e. hydrogen sulfide, CO, CO₂, ammonia, chlorine, nitrous oxide)
- Engulfment/Entrapment (shifting materials or water)
- Heat/Burn
- Electrical
What You Need to Know About Entering a Confined Space:

- Unless trained, authorized, and following USM’s Confined Space Program, do not enter a permit required confined space under any circumstance.
- If you’re unsure whether a space is a permit required confined space, stop and ask your supervisor.
Asbestos and Lead Paint Precautions

- The following are general safety and health awareness guidelines when working near suspected asbestos and/or lead paint:
  - Stop work immediately and contact your supervisor.
  - Lead/asbestos suspicious surfaces shall be pre-tested before work begins.
  - Always check with your supervisor if you have concerns.
Use appropriate personal protective equipment (eye protection, gloves, etc.).

Report any potential exposure incidents to your supervisor immediately.
<table>
<thead>
<tr>
<th>Friable Material</th>
<th>Where Found</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos Cord</td>
<td>Electrical insulations and equipment</td>
<td>Electrical element insulation</td>
</tr>
<tr>
<td>Asbestos Tape, Strip &amp; Tubing</td>
<td>Electrical installations and pipe joints</td>
<td>Electrical conductor insulation, high temperature pipe joint insulation wrap</td>
</tr>
<tr>
<td>Fire resistant theater and welding curtains, protective clothing</td>
<td>Auditoriums, stages, metal shops, high temperature occupations</td>
<td>Fire and heat barrier</td>
</tr>
<tr>
<td>Spray Applied or Trowled-on Insulation</td>
<td>Steel I-beams and decks, concrete ceilings and walls, hot water tanks, pipe elbows, boiler casings</td>
<td>Thermal and acoustical insulation, decorative coverings</td>
</tr>
<tr>
<td>Preformed Thermal Insulation</td>
<td>Boilers, pipes, hot water tanks</td>
<td>Thermal insulation, condensation control</td>
</tr>
<tr>
<td>Artificial Snow</td>
<td>General commercial use</td>
<td>Decoration</td>
</tr>
<tr>
<td>Artificial Fireplace</td>
<td>General commercial use</td>
<td>Decoration</td>
</tr>
<tr>
<td>Corrugated Asbestos Paper</td>
<td>Hot water, steam pipes</td>
<td>Thermal insulation</td>
</tr>
</tbody>
</table>
Electrical Safety

- If working in damp locations, inspect electric cords and equipment to ensure that they are in good condition and free of defects, and use a ground-fault circuit interrupter (GFCI).
- Do not touch low hanging wires.
- Do not overload outlets.
- Report any missing, cracked or loose outlet covers.
Electrical Safety

- Never use equipment with a frayed or damaged power cord. Electrical tape over a cord is not a repair.
- Never operate electrical equipment around water.
- Never repair electrical cords or equipment unless authorized and trained to do so.
Thank You

For questions or concerns please contact
University Environmental Health and Safety at
(207) 780-5406