

# Florida Department of Environmental Protection



## Hazardous Waste Section

### Hazardous Waste Determinations







# RCRA

- Resource Conservation and Recovery Act of 1976 (RCRA)
  - Gave EPA the authority to regulate hazardous waste from “cradle to grave”
- Hazardous and Solid Waste Amendments of 1984





# RCRA

- Codified in Title 40 Code of Federal Regulations Parts 239 to 282
  - Available online at:  
<http://www.epa.gov/lawsregs/search/40cfr.html>
- Adopted, in part, by the State of Florida in Chapter 62-730, Florida Administrative Code
  - Available online at:  
[http://www.dep.state.fl.us/waste/quick\\_topics/rules/default.htm](http://www.dep.state.fl.us/waste/quick_topics/rules/default.htm)





# Hazardous Waste Determination

- 40 CFR 262.11 states “A person who generates a solid waste...must determine if that waste is a hazardous waste...”

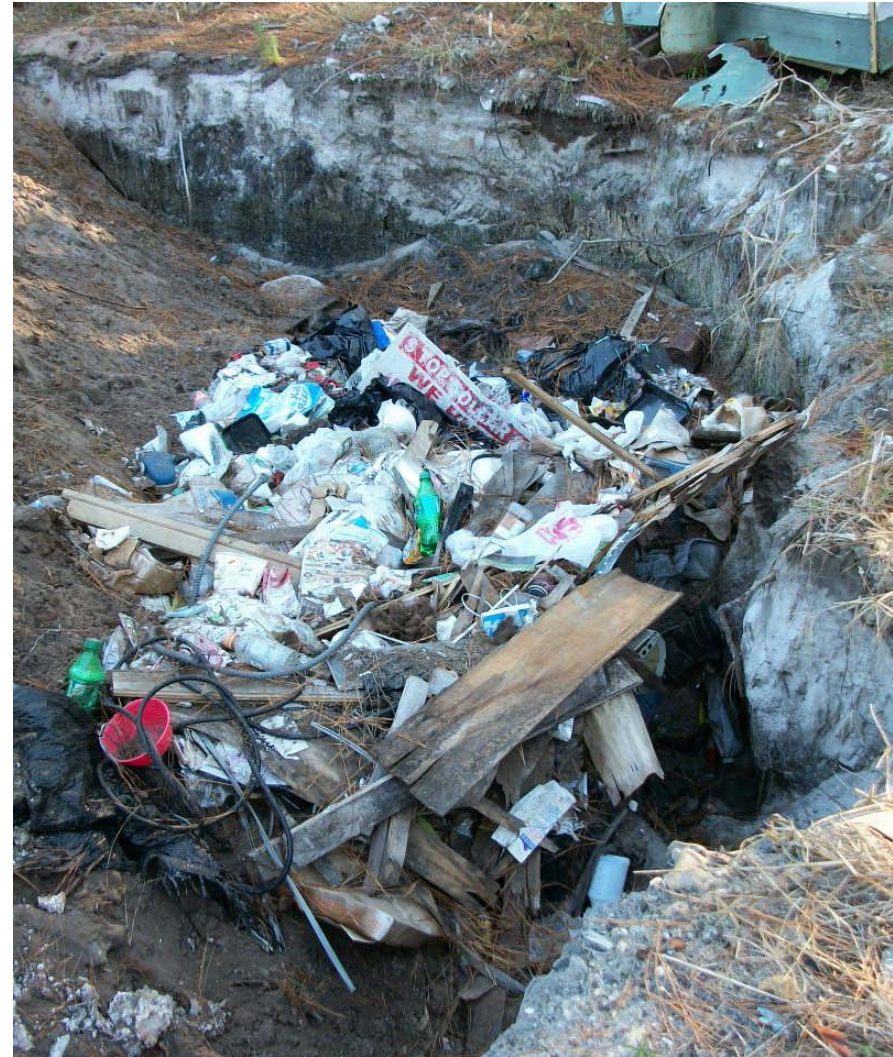


Is anything in this trash can hazardous waste? You cannot tell just by looking.



# What is a Solid Waste ?

- Discarded material
- Abandoned
- Recycled (with some exceptions)
- Inherently waste-like
- Basically anything that you can no longer use for its intended purpose





# Product or Waste?



Is this material still usable?



# Product or Waste?

- Is this material still usable?





# Product or Waste?

- Is this material still usable?



# Product or Waste?

- Is this material still usable?



# Product or Waste?

- Is this material still usable?





# Abandoned Products = Waste





# Product or Waste?





# Exclusions: Not a Solid Waste

- Domestic Sewage
- Secondary materials reclaimed
- Petroleum refining materials
- NPDES regulated point source discharges





# Discharges to POTWs and Septic Tanks

62-730.030(4)(a), F.A.C.





# Exclusions: Solid Waste but not Hazardous Waste

- Household wastes
- Agriculture/farming wastes
- Ash from coal or fossil fuel plants
- Mining/exploration wastes
- UST remediations under 40 CFR 280
- Samples







# Hazardous Wastes

- Listed
  - Non Specific Sources ( F codes)
  - Specific Sources ( K codes)
  - Commercial Chemicals (P and U codes)
- Characteristic
  - Ignitability, Corrosivity, Reactivity, Toxicity
  - ( D004 - D043 codes)



# Listed Wastes

- **The F-list** (non-specific source wastes). This list identifies wastes from common manufacturing and industrial processes, such as solvents that have been used in cleaning or degreasing operations. Because the processes producing these wastes can occur in different sectors of industry, the F-listed wastes are known as wastes from non-specific sources. Wastes included on the F-list can be found in the regulations at 40 CFR §261.31.



# Non-Specific Sources “F” codes

- General Industrial Process Wastes
- Common to many production and service industries
- Spent solvents, electroplating, metal heat treating operations, wood preserving drippage, dioxin wastes, and multi-source leachate
- 39 different “F” codes



# Common F-Listed Solvents

- Tetrachloroethylene
- Trichloroethylene
- Methylene Chloride
- Chlorobenzene
- Acetone
- Xylene
- Methanol
- Cresylic Acid
- Toluene
- Methyl Ethyl Ketone
- Benzene
- Pyridine





# D001/F003 Waste Solvents





# D001/F003/F005 Waste Solvents



# D001/F003/F005 Waste Solvents



Clean way Solvents  
ABN: 59399648361

59 Lincoln Street, Minto NSW 2566  
Telephone: (02) 9820 5144  
Fax: (02) 9820 5899

## Material Safety Data Sheet

### GUNWASH THINNERS

Issued: 15<sup>th</sup> April 2010

#### 1. Identification of the material and supplier

Product Name: Gunwash Thinners.  
UN Number: 1263.  
Dangerous Goods Class: 3.  
Subsidiary Risk: None Allocated.  
Hazard Code: • 3 Y E  
Packaging Group: II / III

Supplier: Clean way  
ABN: 59399648361  
59 Lincoln Street  
Minto NSW 2566  
Telephone: 02 9820 5144  
Emergency contact No 0411 603 683 (all hours)

Fax No.: 02 9820 5899

Uses: Gunwash thinner is a mixture of flammable solvents. It is used in the panel beating, spray-painting, or applied coatings industries. It is recommended for the cleaning of spray painting equipment and other equipment which comes in contact with paint.

#### 2. Hazards Identification

This product is classified as Hazardous according to the criteria of NOHSC Australia. It is also classified as Dangerous Goods (Class 3) by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; Dangerous Goods.

i.e. 'HAZARDOUS SUBSTANCE – DANGEROUS GOODS'

Xn: Harmful

Xi: Irritant

#### 2.1 Risk Phrases.

R11 Highly flammable

### 3. Composition/information on ingredients

| <u>Solvent</u>     | <u>CAS No.</u> | <u>UN No.</u> | <u>Proportion %</u> | <u>Risk Phrases</u> |
|--------------------|----------------|---------------|---------------------|---------------------|
| Toluene            | 108-88-3       | UN 1294       | 35 – 40             | R11, R20            |
| Xylene (isomers)   | 1330-20-7      | UN 1307       | 20 – 25             | R10, R20/21, R38    |
| Acetone            | 67-64-1        | UN 1090       | 10 - 15             | R11, R36, R66, R67  |
| Aliphatic solvents | N/A            | N/A           | 10 – 20             | R38, R65, R67       |



# D001/F003/F005 Waste Solvents – Still Bottoms



The still bottoms are F005 hazardous waste if flash is  $>140$ .





# D001/F003/F005 Waste Solvents - Rags



Paint thinner often contains toluene and/or methyl ethyl ketone resulting in F005 hazardous waste rags.

# Wipes & Rags



Remember this trash can –  
are these rags hazardous  
waste?



# Wipes & Rags



## MATERIAL SAFETY DATA SHEET

### Section 1: Product & Company Identification

Product Name: Brakleen® Brake Parts Cleaner (aerosol)  
 Product Number (s): 05089, 05089-6, 05089T, 75089, 8508  
 Product Use: Brake parts cleaner

#### Manufactured / Supplier Contact Information:

In United States:  
 CRC Industries, Inc.  
 885 Louis Drive  
 Warminster, PA 18974  
[www.crcindustries.com](http://www.crcindustries.com)  
 1-215-974-4300 (General)  
 (800) 521-3168 (Technical)  
 (800) 272-4820 (Customer Service)

In Canada:  
 CRC Canada Co.  
 2-1248 Lorimar Drive  
 Mississauga, Ontario L5S 1R  
[www.crc-canada.ca](http://www.crc-canada.ca)  
 1-905-870-2291

24-Hr Emergency – CHEMTREC: (800) 424-9300 or (703) 527-388

**Product Name:** Brakleen® Brake Parts Cleaner (aerosol)  
**Product Number (s):** 05089, 05089-6, 05089T, 75089, 85089, 85089AZ

### Section 2: Hazards Identification

#### Emergency Overview

**DANGER:** Vapor Harmful. Cont. As defined by OSHA's Hazard Communication Standard  
 Appearance & Odor: Colorless liquid, irritatin

#### Potential Health Effects:

##### ACUTE EFFECTS:

**EYE:** May cause slight temporary eye irritation. Vapor irritant.

**SKIN:** Short single exposures may cause skin irritation. Prolonged exposure may cause severe skin irritation, even a burn. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

**INHALATION:** Dizziness may occur at concentrations of 200 ppm. Progressively higher levels may also cause nasal irritation, nausea, incoordination, and drunkenness. Very high levels or prolonged exposure could lead to unconsciousness and death.

**INGESTION:** Single dose oral toxicity is considered to be extremely low. Swallowing large amounts may cause injury if aspirated into the lungs. This may be rapidly absorbed through the lungs and result in injury to other body systems.

**CHRONIC EFFECTS:** Repeated contact with skin may cause drying or flaking of skin. Excessive or long term exposure to vapors may increase sensitivity to epinephrine and increase myocardial irritability.

**TARGET ORGANS:** Central nervous system. Possibly liver and kidney.

Medical Conditions Aggravated by Exposure: None known.

See Section 11 for toxicology and carcinogenicity information on product ingredients.

### Section 3: Composition/Information on Ingredients

| COMPONENT                  | CAS NUMBER | % by Wt. |
|----------------------------|------------|----------|
| Tetrachloroethylene (PERC) | 127-18-4   | > 95     |
| Carbon Dioxide             | 124-38-0   | < 5      |

**Yes, the rags are F002 hazardous waste.**



# Wipes & Rags

## MATERIAL SAFETY DATA SHEET Klean-Strip Lacquer Thinner

Page: 1

|               |   |
|---------------|---|
| HEALTH        | 2 |
| FLAMMABILITY  | 2 |
| PHYSICAL HAZ. | 1 |
| PPE           | G |



Printed: 03/30/2006  
Revision: 03/15/2006

Date Created: 12/13/2005

### 1. Product and Company Identification

Product Code: QML170  
Product Name: Klean-Strip Lacquer Thinner  
Reference #: 1605.34  
Manufacturer Information  
Company Name: W. M. Barr  
2105 Channel Avenue

Phone Number:  
Emergency Contact:  
Information:  
Web site address:  
Preparer Name:

**Preparer Name:**

**W.M. Barr and Company, Inc. (901)775-0100**

### 2. Com

## 2. Composition/Information on Ingredients

#### Hazardous Components (Chemical Name)

1. Methanol
2. Toluene
3. Acetone
4. Acetic acid, Ethyl ester
5. Hexane, Light aliphatic napha
6. Methyl ethyl ketone
7. Ethanol, 2-Butoxy-

#### Hazardous Components (Chemical Name)

1. Methanol
2. Toluene
3. Acetone
4. Acetic acid, Ethyl ester
5. Hexane, Light aliphatic napha
6. Methyl ethyl ketone
7. Ethanol, 2-Butoxy-

#### Emergency Overview

Danger! Extremely flammable. Keep away from fire. Do not smoke. Extinguish all flames and pilot light are gone. Beware of static electricity that may

#### OSHA Regulatory Status:

#### Potential Health Effects (Acute and Chronic)

##### Inhalation Acute Exposure Effects:

Vapor harmful. May cause dizziness, headache, watering of eyes, irritation of respiratory tract, weakness, drowsiness, nausea, numbness in fingers, arms and legs, depression of central nervous system, loss of appetite, fatigue, hallucinations, light headedness, visual disturbances, giddiness and intoxication, sleepiness, cough and dyspnea, cold, clammy extremities, diarrhea, vomiting, dilation of pupils, spotted vision. Severe overexposure may cause convulsions, unconsciousness, coma, and death. Intentional misuse of this product by deliberately concentrating and inhaling can be harmful or fatal.

##### Skin Contact Acute Exposure Effects:

May be absorbed through the skin. May cause irritation, numbness in the fingers and arms, drying of skin, and dermatitis. May cause increased severity of symptoms listed under inhalation.

##### Eye Contact Acute Exposure Effects:

This material is an eye irritant. May cause irritation, burns, conjunctivitis of eyes, and corneal ulcerations of the eye. Vapors may irritate eyes.

#### Hazardous Components (Chemical Name)

1. Methanol
2. Toluene
3. Acetone
4. Acetic acid, Ethyl ester
5. Hexane, Light aliphatic napha
6. Methyl ethyl ketone
7. Ethanol, 2-Butoxy-

#### Hazardous Components (Chemical Name)

| CAS #      | Percentage   | OSHA TWA  |
|------------|--------------|-----------|
| 67-56-1    | 20.0 -25.0 % | 200 ppm   |
| 108-88-3   | 5.0 -10.0 %  | 200 ppm   |
| 67-64-1    | 5.0 -20.0 %  | 1000 ppm  |
| 141-78-6   | 5.0 -15.0 %  | 400 ppm   |
| 64742-89-8 | 30.0 -50.0 % |           |
| 78-93-3    | 5.0 -10.0 %  | 200 ppm   |
| 111-76-2   | 1.0 -5.0 %   | 50 ppm    |
| CAS #      | OSHA STEL    | OSHA CEIL |



# Wipes & Rags

MATERIAL SAFETY DATA SHEET

4510  
02-00

**SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NUMBER**  
4010  
**PRODUCT NAME**  
NAPA® Multi-Surface Brake Parts Cleaner  
**MANUFACTURER'S NAME**  
Manufactured by:  
The Sherwin-Williams Co.  
Diversified Brands  
Cleveland, OH 44115  
  
Distributors by:  
Berkamp Headquarters  
P. O. Box 421280  
Indianapolis, IN 46242

|   |                |
|---|----------------|
| Regulatory Information  | (21) 505-2512  |
| Medical Emergencies   | (21) 505-2517  |
| Transportation Emergency  | (800) 424-9310 |
| For Chemical Emergencies ONLY (e.g., leak, exposure, transport) |                |

**SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS**

| % by Weight | CAS Number | Ingredient | OSHA PEL  | ACGIH TLV   | Units |
|-------------|------------|------------|---|---|-------|
| 15          | 74-90-6    | Propene    | 1000 PPM  | 2500 PPM  |       |
| 15          | 106-97-0   | Butane     | 1000 PPM  | 1000 PPM  |       |
| 10          | 67-68-2    | Methanol   | 200 PPM (Skin)<br>250 PPM (Skin) STEL<br>700 PPM (Skin) | 200 PPM (Skin)<br>250 PPM (Skin) STEL<br>700 PPM (Skin) |       |
| 55          | 67-64-1    | Acetone    | 1000 PPM  | 500 PPM<br>700 PPM STEL                                 |       |

**SECTION 3 — HAZARDS IDENTIFICATION**

**ROUTES OF EXPOSURE**  
INHA: AT, ON, U, V, vapor or spray mist.  
EYE or SKIN contact with the product, vapor or spray mist.  
Contact with solids or liquids which can be absorbed through the skin.  
**EFFECTS OF OVEREXPOSURE**  
EYES: Irritation.  
SKIN: Frequent or repeated contact may cause irritation.  
INHALATION: Irritation of the upper respiratory system.

|              |   |
|--------------|---|
| Health       | 3 |
| Flammability | 2 |
| Reactivity   | 1 |

May cause dizziness, nausea, and headache. Excessive overexposure may result in respiratory distress and possible death.  
Excessive overexposure to solvent ingredients in Section 2 may cause adverse effects to the liver and urinary systems.  
**SIGNS AND SYMPTOMS OF OVEREXPOSURE**  
Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.  
Redness and itching of skin or irritation may indicate eye or excessive skin exposures.

**SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS**

| % by Weight | CAS Number | Ingredient | OSHA PEL  | ACGIH TLV   | Units |
|-------------|------------|------------|---|---|-------|
| 15          | 74-90-6    | Propene    | 1000 PPM  | 2500 PPM  |       |
| 15          | 106-97-0   | Butane     | 1000 PPM  | 1000 PPM  |       |
| 10          | 67-68-2    | Methanol   | 200 PPM (Skin)<br>250 PPM (Skin) STEL<br>700 PPM (Skin) | 200 PPM (Skin)<br>250 PPM (Skin) STEL<br>700 PPM (Skin) |       |
| 55          | 67-64-1    | Acetone    | 1000 PPM  | 500 PPM<br>700 PPM STEL                                 |       |

**SECTION 3 — HAZARDS IDENTIFICATION**

These rags are not hazardous waste.  
But remember – liquid waste is a different story.



# Rags and Discharges to POTWs and Septic Tanks





# 911



Generators are responsible for making a complete hazardous waste determination, that does not mean you cannot ask for help.



# F002 Waste Paint Chips







# F002 Waste Paint Chips



Are these paint chips hazardous waste?





# F002 Waste Paint Chips

**MATERIAL SAFETY DATA SHEET**  
**Jasco / Bix Premium Paint & Epoxy Remover**

Page: 1



Printed: 11/17/2008  
 Revision: 11/17/2008  
 Supersedes Revision: 11/13/2008  
 Date Created: 09/17/2008

## 1. Product and Company Identification

**Product Code:** 4015.21E  
**Product Name:** Jasco / Bix Premium  
**Manufacturer Information**  
**Company Name:** W. M. Barr  
 2105 Channel Avenue  
 Memphis, TN 38113  
 (901)775-0100  
**Phone Number:**  
**Emergency Contact:** 3E 24 Hour Emergency  
**Information:** W.M. Barr Customer Service  
**Web site address:** www.wmbarr.com  
**Preparer Name:** W.M. Barr EHS Department  
**Synonyms**  
 QJBP00202, GJBP00203, CJBP00204, PJBP02011

## 2. Composition/Information

| Hazardous Components (Chemical Name)  | CAS #     | Concentration |
|---|-----------|---------------|
| 1. Dichloromethane (Methylene chloride)   | 75-09-2   | 80.0 - 90.0 % |
| 2. Methanol (Methyl alcohol; Carbinol; Wood alcohol)                                  | 67-56-1   | <10.0 %       |
| 3. Stoddard solvent (Mineral spirits; Aliphatic Petroleum Distillates; White spirits) | 8052-41-3 | < 5.0 %       |

| Hazardous Components (Chemical Name)  | RTECS #   | OSHA PEL |
|---|-----------|----------|
| 1. Dichloromethane (Methylene chloride)   | PA8050000 | 125 ppm  |
| 2. Methanol (Methyl alcohol; Carbinol; Wood alcohol)                                  | PC1400000 | No data  |
| 3. Stoddard solvent (Mineral spirits; Aliphatic Petroleum Distillates; White spirits) | WJ8925000 | No data  |

| Hazardous Components (Chemical Name)  | CAS #     | Concentration |
|---|-----------|---------------|
| 1. Dichloromethane (Methylene chloride)   | 75-09-2   | 80.0 - 90.0 % |
| 2. Methanol (Methyl alcohol; Carbinol; Wood alcohol)                                  | 67-56-1   | <10.0 %       |
| 3. Stoddard solvent (Mineral spirits; Aliphatic Petroleum Distillates; White spirits) | 8052-41-3 | < 5.0 %       |

| Hazardous Components (Chemical Name)  | RTECS #   | OSHA STEL |
|---|-----------|-----------|
| 1. Dichloromethane (Methylene chloride)   | PA8050000 | 125 ppm   |
| 2. Methanol (Methyl alcohol; Carbinol; Wood alcohol)                                  | PC1400000 | No data   |
| 3. Stoddard solvent (Mineral spirits; Aliphatic Petroleum Distillates; White spirits) | WJ8925000 | No data   |

## 3. Hazards Identification

**Emergency Overview**

Danger! Poison!  
 Harmful if swallowed, inhaled, or absorbed through the skin.  
 May be fatal or cause blindness if swallowed.  
 Eye, skin, and respiratory tract irritant.

**OSHA Regulatory Status:**

This material is classified as hazardous under OSHA regulations.

**Potential Health Effects (Acute and Chronic)**

**INHALATION ACUTE EXPOSURE EFFECTS:**

Vapor harmful.  
 Mist or vapor can irritate the throat, lungs, and upper respiratory tract. May cause central nervous system depression with symptoms including nausea, headache, dizziness, fatigue, drowsiness, or unconsciousness.

Severe overexposure may cause irregular or rapid heartbeat, convulsions, unconsciousness, and death.  
 Intentional misuse of this product by deliberately concentrating and inhaling the vapors can be harmful or fatal.  
 May cause carboxyhemoglobinemia, thereby impairing the blood's ability to transport oxygen. Elevated carboxyhemoglobin levels can be additive to the increase caused by smoking and other carbon monoxide sources.

Yes, the paint chips are F002 hazardous waste.

# F-Listed Waste Example



Separator water and still bottoms (sludge) from the recovery of tetrachloroethylene at dry cleaners are F002 hazardous waste.





# F-Listed Waste Example

- F006 - Wastewater treatment sludges from electroplating operations





# F-Listed Waste Example



Spent cyanide plating bath solutions from electroplating operations result in a F007 hazardous waste.



# F-Listed Waste Example



Spent cyanide plating bath solutions from electroplating operations result in a F007 hazardous waste.



# Listed Wastes

**The K-list** (source-specific wastes). This list includes certain wastes from specific industries, such as petroleum refining or pesticide manufacturing. Certain sludges and wastewaters from treatment and production processes in these industries are examples of source-specific wastes. Wastes included on the K-list can be found in the regulations at 40 CFR §261.32.



# Specific Source “K” codes

- Process wastes
- Specific wastes from specific industries
- Examples - Distillation bottoms, wastewater treatment sludges, heavy ends and condensate from specific processes







# Listed Wastes

## **The P-list and the U-list**

(discarded commercial chemical products).

These lists include specific commercial chemical products in an unused form. Some pesticides and some pharmaceutical products become hazardous waste when discarded.

Wastes included on the P- and U-lists can be found in the regulations at 40 CFR §261.33



# Commercial Chemicals

## “P” & “U” codes

- Unused, off specification, or technical grade products
- Sole active ingredient
  - Toxic (U Codes)
  - Acutely Toxic (P Codes)
- Spill residues
- Does not include mixtures with more than one active ingredient



# Commercial Chemicals





# Commercial Chemicals



# Commercial Chemicals





# “U” Waste on the Ground



# “P” Waste



“P” waste can be generated as a result of a laboratory clean-out or at hospitals/pharmacies.





# Listed Wastes

Use 40 CFR 261 Appendix VII to see the hazardous constituent for which listed.

## Examples:

- F006 – Cadmium, hex chromium, nickel, and cyanide
- K061 – Hex chromium, lead, and cadmium





# Listed Wastes

## Mixture Rule:

Mixtures of solid waste and one or more hazardous wastes listed in Subpart D of 40 CFR 261 and has not been excluded [40 CFR 261.3(a)(2)(iv)].

## Derived From Rule:

Unless and until it meets the criteria of 261.3(d), a hazardous waste will remain a hazardous waste [40 261.3(c)].



# Characteristic Wastes

- Characteristic
  - Ignitability
  - Corrosivity
  - Reactive
  - Toxicity (TCLP Analysis)
- May be knowledge-based or analysis may be required



# Ignitability

## D001

- Liquids, Flash Point  $< 140^{\circ}$  F
  - $< 24\%$  alcohol / water solutions excluded
- Ignitable compressed gases per DOT rules
- Oxidizers per DOT rules
- Non liquids which can cause fire through friction, absorption of moisture or spontaneous combustion. When ignited, burn so vigorously and persistently that it creates a hazard.



# D001 Waste Paint



And the MSDS says:

===== SECTION IV - FIRE AND EXPLOSION HAZARD DATA =====

FLASH POINT(Deg F): 1                      METHOD USED: TOC  
FLAMMABLE LIMITS IN AIR BY % VOLUME- LOWER: .9      UPPER: 36





# D001 Waste Paint



# Waste Paint ?





# Waste Vs Empty Container





# Waste Vs Empty Container



RCRA defines 'empty' at 40 CFR 261.7(b)(1) and creates a two part test to determine whether a container or liner is empty.



# Aerosol Cans





# Aerosol Cans



RCRA regulations require that, unless relieved of pressure, aerosol cans must be packed in a drum and manifested for hazardous waste disposal (40 CFR Part 261).



# Corrosivity D002

- Aqueous,  $\text{pH} \leq 2$  or  $\geq 12.5$
- Liquid, corrodes SAE 1020 steel at 1/4 in./year at 55° C by NACE Method TM-01-69

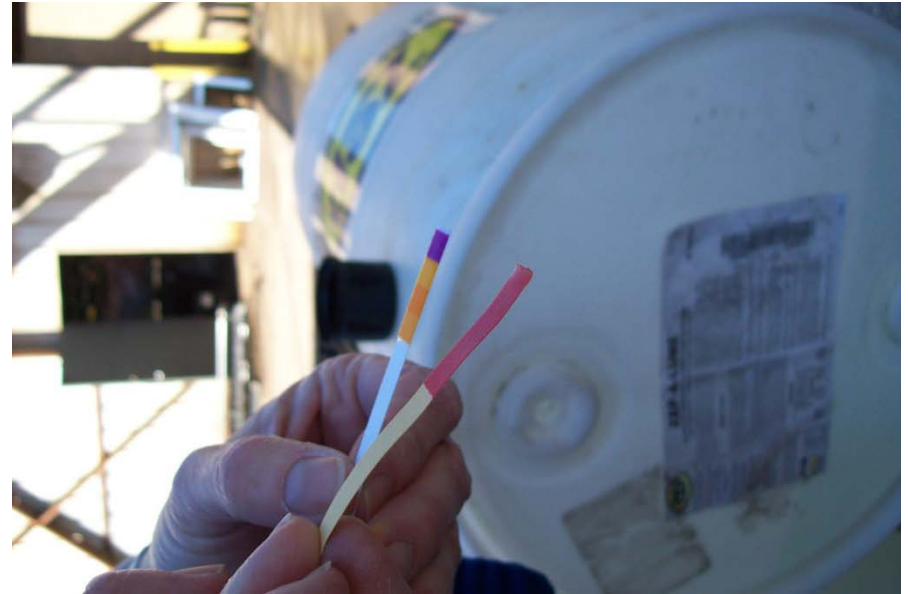


# Corrosivity D002





# Corrosivity D002





# Reactivity D003

- Normally unstable - violent changes
- Water reactive
- Forms explosive mixtures with water
- When mixed with water, generates toxic gasses
- Cyanide or sulfide wastes
- Forbidden, Class A or Class B DOT Explosives



# Managing Reactive Waste





# Toxicity Characteristic D004-D043

- TCLP test
- Zero headspace extraction
  - Use correct sampling technique
- Particle reduction, filtration
- 40 Toxic constituents
  - 8 heavy metals
  - Pesticides
  - Other organics







# Toxicity Characteristic D004-D043

- **TCLP Test—(Toxicity Characteristic Leaching Procedure)**

- arsenic; barium; benzene; cadmium; carbon tetrachloride; chlordane; chlorobenzene; chloroform; chromium; o-cresol; m-cresol; p-cresol; cresol; 2,4-D; 1,4-dichlorobenzene; 1,2-dichloroethane; 1,1-dichloroethylene; 2,4-dinitrotoluene; endrin; heptachlor; hexachlorobenzene; hexachlorobutadiene; hexachloroethane; lead; lindane; mercury; methoxychlor; **methyl ethyl ketone**; nitrobenzene; pentachlorophenol; pyridine; selenium; silver; **tetrachloroethylene**; toxaphene; trichloroethylene; 2,4,5-trichlorophenol; 2,4,6-trichlorophenol; 2,4,5-TP (Silvex); vinyl chloride

- **Examples: paints containing heavy metals, sand blast grit, thermometers**



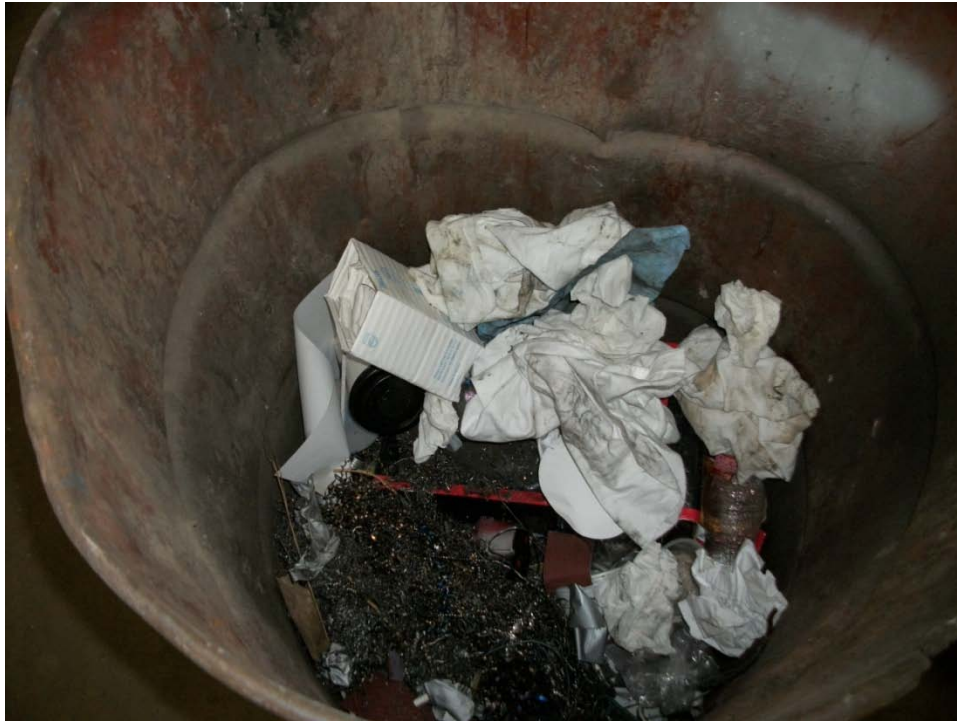
# Toxicity Characteristic D004-D043



Paint booth filters can become hazardous waste if the paints being used contain heavy metals.



# Toxicity Characteristic D004-D043



Remember this trash can –  
are the metal turnings  
hazardous waste?

These are





# Spent Sandblast Grit



4.77 mg/L or ppm  
Barium

## TCLP Metals by 6000/7000 Series Methods

^ - EPA/2010 Laboratory certified analysis (MSL# 692277)

| Analyte (CAF Number)   | Results | Flag | Units | DE | MDL     | RSQ    | White   | Method    | Analyst        | Per | Notes |
|------------------------|---------|------|-------|----|---------|--------|---------|-----------|----------------|-----|-------|
| Ammonia (7440-39-2) ^  | 0.038   |      | mg/L  | 1  | 0.0125  | 0.9999 | 0000002 | EPA 8210C | MSL/2010/03/25 | ACV |       |
| Barium (7440-39-2) ^   | 4.77    | U    | mg/L  | 1  | 0.0035  | 0.999  | 0000002 | EPA 8210C | MSL/2010/03/25 | ACV | gr-01 |
| Cadmium (7440-43-9) ^  | 0.00007 |      | mg/L  | 1  | 0.00185 | 0.9999 | 0000002 | EPA 8210C | MSL/2010/03/25 | ACV |       |
| Chromium (7440-40-3) ^ | 0.00001 |      | mg/L  | 1  | 0.00007 | 0.9999 | 0000002 | EPA 8210C | MSL/2010/03/25 | ACV |       |
| Copper (7440-50-9) ^   | 0.052   |      | mg/L  | 1  | 0.014   | 0.9999 | 0000002 | EPA 8210C | MSL/2010/03/25 | ACV |       |
| Fluoride (7440-50-9) ^ | 0.00945 | U    | mg/L  | 1  | 0.0004  | 0.9999 | 0000002 | EPA 8210C | MSL/2010/03/25 | ACV |       |
| Selenium (7782-49-2) ^ | 0.0445  | U    | mg/L  | 1  | 0.0145  | 0.9999 | 0000002 | EPA 8210C | MSL/2010/03/25 | ACV | gr-01 |
| Zinc (7440-65-4) ^     | 0.00750 | U    | mg/L  | 1  | 0.00250 | 0.9999 | 0000002 | EPA 8210C | MSL/2010/03/25 | ACV |       |

# Pesticide Waste



# Parts Washer



- May or may not result in a hazardous waste
- What type of solvent is used?
- What is washed?
- Are any other solvents used in conjunction with the parts washer?

# Water-Based Parts Cleaners



Usually produces an oily sludge that will require proper disposal.



# Commercial Chemical Products May Become Characteristic Hazardous Wastes







**Unlabeled, unknown containers will lead to expensive analytical costs.**





# Improper Unknown Waste Management





# Proper Waste Management for Unknown Wastes





# What is in the Drum?





# What is in the Bucket?





# Questions?