

# Hazardous Waste Treatment Advantages & Regulatory Pitfalls

Presented By:  
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# Introduction Comments

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- Hazardous waste generators (CESQG, SQG & LQG) may treat their own hazardous waste onsite under certain conditions:
  - Without a RCRA Permit.
- Memorandums and guidance documents are available from the CT DEP and EPA on:
  - Particular Treatment Activities that are Exempted from RCRA Permitting

# Introduction Comments (cont.)

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## Steps for Determining if a RCRA Permit is Needed

1. Determine if the Waste Entering the Treatment Unit is a Hazardous Waste
  - Hazardous Waste Determination
2. Determine if Hazardous Waste Treatment is being Conducted
  - Discussed in Section 1.0

# Introduction Comments (cont.)

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## Steps for Determining if a RCRA Permit is Needed (cont.)

3. Determine if Treatment Activity is Exempted from Permitting
  - Discussed in Section 2.0
  
4. Determine if Your Treatment Activity Meets all EPA/CT-DEP Standards
  - Several Treatment Options Discussed in Section 3.0

# Introduction Comments (cont.)

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## Steps for Determining if a RCRA Permit is Needed (cont.)

5. Determine How Your Waste will be Managed after Treatment



# Section 1.0



What is Treatment?

# 1.1 “Treatment” Definition

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- 40 CFR 260.10 – 2 Part Definition

## First Part

- Any method, technique or process, designed to change the:
  - Physical Character;
  - Chemical Character;
  - Biological Character; or
  - Composition of a Hazardous Waste

# 1.1 “Treatment” Definition (cont.)

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## Second Part

- Treat the Hazardous Waste to:
  - Neutralize Waste;
  - Recover Energy or Material Resources from the Waste;
  - Render the Waste Non-Hazardous or less Hazardous;
  - Render the Waste Safer to Transport, Store or Dispose;
  - Make the Waste More Amenable for Storage or Recovery; or
  - Reduce the Volume of the Waste

# 1.2 “Treatment” Examples

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- **Metal Recovery**
- Air & Steam Stripping
- Blending
- Chemical Oxidation & Reduction\*
- Chemical Precipitation
- **Compaction**
- Composting
- **Distillation**
- Encapsulation
- **Evaporation**
- Filtration
- Incineration\*
- **Neutralization**
- Solidification
- **Solvent Recovery**
- Stabilization

\* Requires permit

# Section 2.0

Hazardous Waste Treatment Activities  
Exempted from RCRA Permitting

# 2.1 Hazardous Waste Treatment Permit Exemptions

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## 1. Wastewater Treatment Units

- 40 CFR 265.1(c)(10), 270.1(c)(2)(v) & 260.10

## 2. Elementary Neutralization Units

- 40 CFR 265.1(c)(10), 270.1(c)(2)(v) & 260.10

## 3. Adding “Sorbents” to Wastes

- 40 CFR 270.1(c)(2)(vii) & 265.1(c)(13)

## 4. Recycling

- 40 CFR 261.6(c) & (d)

## 2.1 Hazardous Waste Treatment Permit Exemptions (cont.)

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### 5. Total Enclosed Treatment Facilities

- 40 CFR 265.1(c)(9), 270.1(c)(2)(iv) & 260.10
- 2 – Part Definition:
  - Directly Connected to an “Industrial Production Process”
  - Constructed and Operated in a Manner, which Prevents the Release of any Hazardous Waste or Hazardous Waste Constituents, into the Environment During Treatment:
    - Including Water Vapor

## 2.1 Hazardous Waste Treatment Permit Exemptions (cont.)

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### 6. 90 and 180-Day Accumulation Units (Tanks & Containers only)

- Exemption Not Listed in RCRA Regulations, with one exception – 40 CFR 268.7(a)(5)
- Exemption Referenced in:
  - March 24, 1986 Federal Register - Final SQG Rule
  - EPA RCRA Online Document #s 11163,11641, 11791, 12811 and 13782
  - CT-DEP's October 3,1991 Memorandum (see Attachment C)

# RCRA Online

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[www.epa.gov/epawaste/inforesources/online/index.htm](http://www.epa.gov/epawaste/inforesources/online/index.htm)



## 2.2 Unacceptable Hazardous Waste Treatment Options

- Connecticut does not allow for the use of florescent light bulb crushers as a form of hazardous waste treatment.
- August 15, 2002 DEP Letter to Air Cycle concerning the “BulbEater” lamp crusher (will be made available on the DEP’s website)



# Section 3.0

CT-DEP Treatment Standards for:

- Evaporators
- Aerosol Can Puncturing
- Compactors

# 3.1 Evaporators

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- CT-DEP's October 29, 2002 Guidance (see Attachment A)
  - Perform hazardous waste determinations on wastewaters entering and all results/concentrates removed from the evaporator
  - Evaporator receiving hazardous wastes and generates a wastewater discharge that is permitted by DEP permit:
    - Meets Wastewater Treatment Unit Exemption and is Exempted from RCRA permitting

# 3.1 Evaporators

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- CT-DEP's October 29, 2002 Guidance (see Attachment A)
  - Evaporator used to concentrate a hazardous waste prior to recycling or reclaiming or sending off-site for reclamation:
    - Subject to 22a-449(c)-101(c) - Recyclable Materials
    - May not require RCRA Permit (evaluated on a case-by- case basis)
  - Evaporators - Totally Enclosed
  - Evaporators - Not Totally Enclosed

## 3.1.1 Evaporators – Totally Enclosed

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- Meet Totally Enclosed Treatment Facility Definition
- If Influent is a Non-Hazardous Waste:
  - Submit a non-HW certification form to CT-DEP
  - Obtain discharge permit if hauled to POTW
  - Exempted from Air & RCRA Regulations, except:
    - Hazardous waste concentrates/sludge exiting the evaporator must be properly characterized, managed on-site and disposed of

## 3.1.1 Evaporators – Totally Enclosed (cont.)

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- If Influent is a Hazardous Waste:
  - Submit letter to CT-DEP
  - Verify in writing wastewater will be hauled to permitted facility during malfunctions or install collection tanks
  - Must be directly connected to process – no storage in tanks or containers prior to evaporation
  - Hazardous waste concentrates/sludge exiting the evaporator must be properly characterized, managed on-site and disposed of

## 3.1.1 Evaporators – Totally Enclosed (cont.)

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- If Influent is a Hazardous Waste (cont.):
  - Evaporator system is exempted from (excluding hazardous waste concentrates/sludge exiting the evaporator):
    - RCRA Permitting
    - Subpart J Requirements
    - Subparts AA, BB & CC Requirements
    - 262.34 Requirements

## 3.1.2 Evaporators – Not Totally Enclosed

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- If a Non-Hazardous Waste:
  - Submit a non-HW certification form to CT-DEP
  - Apply for Air Permit if applicable criteria are met
  - Obtain Discharge Permit if hauled to POTW
  - Exempted from RCRA Regulations, except:
    - Hazardous waste concentrates/sludge exiting the evaporator must be properly characterized, managed on-site and disposed of; and

## 3.1.2 Evaporators – Not Totally Enclosed (cont.)

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- If a Hazardous Waste:
  - Submit letter to CT-DEP
  - Verify in writing wastewater will be hauled to permitted facility during malfunctions or install collection tanks
  - Comply with 1 of the following:
    - Meet 90 or 180 Day Accumulation Unit Exemption
    - OR
    - Apply for a Wastewater Discharge Permit
    - OR
    - Submit an Application for a RCRA Part B Permit
  - Containers and tanks used to store wastewater prior to evaporation must comply with applicable generator's requirements.

# 3.1.3 Advantages & Disadvantages

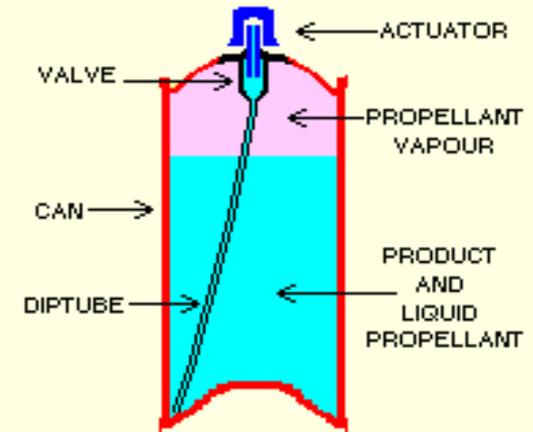
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- Advantages:
  - Reduces the volume of waste generated and stored on-site
  - Reduce disposal costs
- Disadvantages:
  - Training of Equipment Operator
  - Worker Safety
  - Operator Time
  - Possible subparts AA/BB/CC Compliance
- Conduct Cost Benefit Analysis



## 3.2 Puncturing Aerosol Cans

- Aerosol Can Contains:
  - Product
  - Propellant
  - Valve with Dip Tube
  - Actuator
- Greater than 1,500 Aerosol Products – Ranging from Personal Care Products to Paints



## 3.2 Puncturing Aerosol Cans (cont.)

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### ■ Products & Propellant Potential Hazardous Waste Properties:

- Ignitability – can readily catch on fire
- Corrosivity – acidic or alkaline
- Reactivity – can explode
- Toxicity – poisonous
- Listed Hazardous Waste (P or U Code - if sole active ingredient)



# Damage From One Aerosol Can of Hair Spray

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## 3.2 Puncturing Aerosol Cans (cont.)

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- CT-DEP's July 13, 2005 Fact Sheet (see Attachment B):
  - Aerosol cans that do not contain "significant" amount of liquid meet the definition of:
    - Scrap Metal – 40 CFR 261.1(c)(6)
  - To meet the definition of scrap metal aerosol cans must be punctured and drained

## 3.2 Puncturing Aerosol Cans (cont.)

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- CT-DEP's July 13, 2005 Fact Sheet:
  - Recycled "scrap metal" is exempted from RCRA requirements:
    - 40 CFR 261.6(a)(3)(ii)
  - Puncturing and emptying the can is part of the recycling process therefore exempted from RCRA permitting
    - 40 CFR 261.6(c)

## 3.2 Puncturing Aerosol Cans (cont.)

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- CT-DEP's July 13, 2005 Fact Sheet:
  - CT-DEP Requirements:
    - Can is punctured at either end to allow most of the remaining liquid to flow from the can;
    - Punctured can does not contain any significant liquids
    - Punctured cans are recycled
    - Cans are not stored on-site before recycling for more than 1 year (accumulated speculatively)



## 3.2 Puncturing Aerosol Cans (cont.)

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- Advantages:
  - Avoid Disposing of Aerosol Cans as Hazardous Wastes
  - Reduce Regulatory Requirements – By Managing Waste Collected from Aerosols Cans in SAA
  - Generate Revenue
  
- Disadvantages:
  - Training of Equipment Operator
  - Worker Safety
  - Operator Time
  
- Conduct Cost Benefit Analysis

# 3.3 Compactors

- Typical wastes managed in Compactors:
  - Non-hazardous solid waste
  - Drained oil or gasoline filters
  - Paint booth filters
  - Paint/stain contaminated rags
  
- If treating hazardous waste:
  - RCRA Treatment Permit Required Unless:
    - Not “Treatment” – See August 11, 2006 DEP Letter to Kaman Aerospace; or
    - Meet 90 or 180 day Accumulation Unit Treatment or Recycling Exemptions



## 3.3.1 CT-DEP's Memorandum for Treatment in Accumulation Units

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- Dated October 3, 1991 (see Attachment C):
  - Must Comply All Applicable Requirements:
    - Containers – Part 265, Subpart I
    - Tanks – Part 265, Subpart J
    - 90 or 180-Day Treatment Time Limit
    - Preparedness & Prevention – Part 265, Subpart C
    - Contingency Plan/Emergency Procedure – Part 265, Subpart D
    - Subparts AA, BB & CC

## 3.3.1 CT-DEP's Memorandum for Treatment in Accumulation Units (cont.)

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- CT-DEP's October 3, 1991 Memorandum for Treatment in Accumulation Units (see Attachment C):
  - Must Comply All Applicable Requirements:
    - Treatment does not release hazardous constituents to any environmental media
    - Treatment does not produce or result in an explosion, fire, or generation of toxic mists, dusts or gases
    - Ideally, treatment occurs at the time the waste is first placed in the container
    - There must be some environmental benefit (e.g. reuse of spent materials, rendering a waste less hazardous)
    - Employees are thoroughly familiar with proper waste handling and emergency procedures for the evaporator

## 3.3.2 Advantages & Disadvantages of Compactor Treatment

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- Advantages:
  - Reduces the volume of waste generated and stored on-site
  - Reduce disposal costs
- Disadvantages:
  - Waste must comply with stringent VOC emission limits per RCRA Subpart BB & CC
    - Costly and Significant Regulatory Burden
  - Compacted waste must be limited to no and low VOC emitting hazardous waste streams
- Complete Cost Benefit Analysis

# 3.4 Land Disposal Restrictions (LDR) Requirements

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- LDR Requirements apply to:
  - All generated hazardous waste, including hazardous waste managed in Hazardous Waste Treatment Permit Exemption Units
  - Continue to apply to hazardous wastes that are rendered non-hazardous by treatment

# 3.4 Land Disposal Restrictions (LDR) Requirements (cont.)

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- LDR Requirements include:
  - Prohibition on dilution as a substitute for treatment (40 CFR 268.3)
  - Generator's determination if treatment is required prior to land disposal [40 CFR 268.7(a)(1)]
  - One-time notice to disposal facility if waste **does not** meet LDR treatment standards [40 CFR 268.7(a)(2)]
  - One-time notice to disposal facility if waste **does** meet LDR treatment standards [40 CFR 268.7(a)(3)]

# 3.4 Land Disposal Restrictions (LDR) Requirements (cont.)

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- LDR Requirements include:
  - Written Waste Analysis Plan [40 CFR 268.7(a)(5)]
  - Documentation of “Knowledge of Process” information used in determining if a waste is restricted from land disposal [40 CFR 268.7(a)(6)]
  - One-time notice in generator’s files for certain wastes that are exempted (e.g. WWTUs) [40 CFR 268.7(a)(7)]
  - Retention of LDR records for at least 3 years [40 CFR 268.7(a)(8)]

# 4.0 Final Word

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CT DEP encourages generators who treat hazardous waste in allowable treatment units, not to rely solely on this training and available regulatory guidance documents, but to contact the CT DEP with any questions or concerns regarding hazardous waste treatment activities.

- Call DEP COMPASS Hotline 888-424-4193
- Post question on HWAC listserv ([www.ct.gov/dep/hwac](http://www.ct.gov/dep/hwac) to become member)
- Request On-site DEP Consultative / Audit Services

# Thank-You

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