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G-000-102.149

NOTIFICATION OF AERSOL CAN DISPOSAL PROGRAM

07/11/95

**DOE-1195-95
DOE-FN OEPA
16
LETTER**

Department of Energy
Fernald Environmental Management Project
P.O. Box 386705
Cincinnati, Ohio 45238-6705
(513) 648-3155

JUL 11 1995

DOE-1195-95

Mr. Paul Pardi
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Pardi:

NOTIFICATION OF AEROSOL CAN DISPOSAL PROGRAM

The purpose of this letter is to inform you of the Aerosol Can Disposal Program that is being initiated by the U.S. Department of Energy, Fernald Area Office (DOE-FN) to puncture used and unusable aerosol cans to render them "RCRA empty" (40 CFR 261.7(b)(1) and (2)/OAC 3745-51-07(B)(1) and (2)). The residual liquid contents from the cans will be collected for proper disposal after characterization. The program will handle approximately 200 Drum Equivalents (DEs) of backlog aerosol cans as well as newly generated cans. The puncturing operation will be performed in an appropriate location north of the Plant 1 Pad with proper ventilation and spill control. The Aerosol Can Depressurizers manufactured by Aerosolv Corporation will be used to puncture the cans using Site Procedure 01-C-200, Aerosol Can Puncturing Facility. Each unit includes an activated carbon filter ventilation device to provide adequate control of emissions (see Enclosure 1). The project will start in mid-1995 and will continue until the clean-up of the site is completed or as long as required.

The program will achieve the following objectives:

- 1) Removal of the backlog inventory of empty aerosol cans;
- 2) Establishment of a process to puncture and dispose of any newly generated aerosol cans (Enclosure 2 - Flow Sheet of the Work Plan);
- 3) Reinforcement of administrative controls to ensure proper segregation and handling of the aerosol cans and their contents;
- 4) Adherence to waste minimization principles which require segregation of contaminated from non-contaminated material;
- 5) Prevent unpunctured aerosol cans from occurring in shipments of waste being disposed at the Nevada Test Site (NTS) in order to assure compliance with NTS Waste Acceptance Criteria (WAC).

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ENCLOSURE 1

NOV-10-1992 08:12 FROM GE SUPERABRASIVES
11/05/92 15:06 808 754 2345 3002

TO 95442329 P.01
LAB SAFETY TECH. 16378
002/012

AEROSOLV™ & AEROSOLV™ FILTER

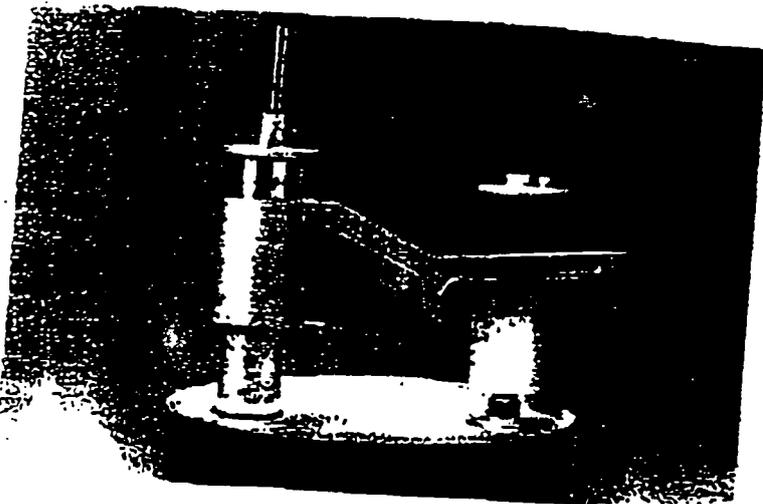
AEROSOLV - EASY TO USE

Patent pending

Aerosolv is easily installed and operated by hand. Made of aircraft aluminum for rugged durability, it's designed and built to withstand years of use and abuse. It threads directly to the 2" bung of a 55-gallon drum.

Aerosolv was designed for maximum worker safety while providing convenient, affordable compliance. It exceeds OSHA safety standards for puncturing aerosol cans. For added safety, an optional coalescing filter is available to install on the 3/4" bung to reduce flammable emissions.

Aerosolv is pictured above installed with the optional, but highly recommended, Aerosolv Filter.



AEROSOLV FILTER

The Aerosolv Filter was developed specifically for removing ignitable vapors from the pressurized gas prior to emission through the 3/4" bung of the drum. It is extremely efficient at removing sub-micrometer aerosols and particulate.

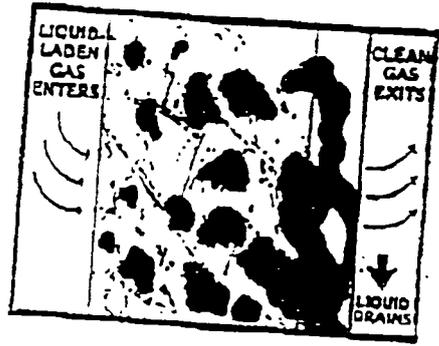
Coalescing, by definition, means "to come together". It is a continuous process by which small aerosols come in contact with the fibers in the filter media, uniting with other collected aerosols and growing to emerge as a droplet. This droplet is then gravitationally drained away.

With the optional Aerosolv Filter, the pressurized gas from the aerosol can is rendered inert prior to exiting the drum. The liquid (collected from the gas) is collected in the lower portion of the filter.



THE END RESULT

Aerosolv easily and efficiently punctures aerosol cans in a wide assortment of shapes and sizes. Within the Aerosolv housing is a fluid-tight seal to accommodate the various sizes of cans inserted. Residual contents are drained from the punctured can into the drum in a matter of seconds.



Discovered by:
LAB SAFETY
11/05/92

Post-It™ brand tax transmittal memo 7671 # of pages 11

TO: ART Coleman	From: D. Olson
Co: OHIO EPA	Co: GES-W
Dept: DHWM	Phone # 438-2247
Fax # 614 644 2329	Fax # 438-2888

00515

NOV-18-1992 09:13 FROM GE SUPERABRASIVES TO 88442329 P.02
 11/05/92 13:07 808 754 2345 3002 LAB SAFETY TECH. 003/012

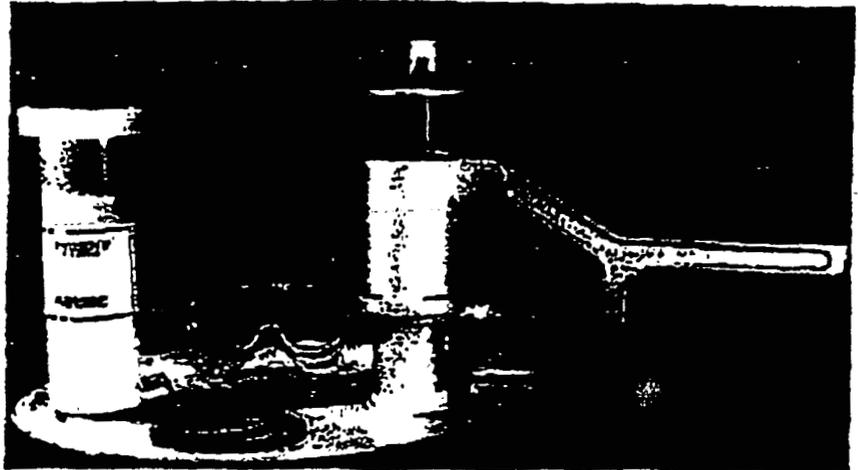
AEROSOLV™ & AEROSOLV™ FILTER

AEROSOLV™ CONVENIENCE

- Threads directly to the 2" bung of any standard drum.
- AEROSOLV is portable; weighs 5 pounds.
- AEROSOLV does not require a power source. Easily operated by hand.
- Collects residual contents directly into drum.
- AEROSOLV increases opportunities for recycling and waste minimization.
- Accommodates aerosol cans in a wide assortment of shapes and sizes.

CONSTRUCTION

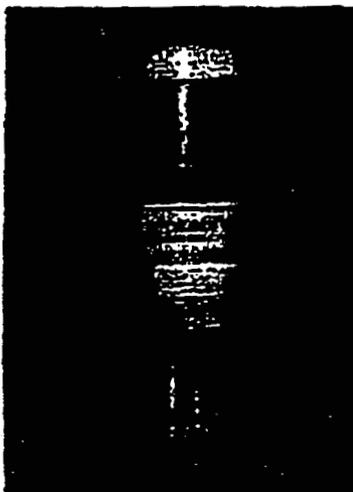
- Made of aircraft aluminum, requiring no maintenance.
- All moving parts are 303 stainless steel.
- Puncture pin is carbide-tipped and o-ring sealed to prevent leakage. Grease packing lubricates puncture pin chamber with each use.
- Carbide-tipped puncture pin will withstand repeated, long-term use, showing no visible wear after puncturing 10,000 aerosol cans.



Stock No.	Shipping Weight
CPU01 Can Puncturing System (1 Puncturing Unit, 1 Filter, 1 Anti-Static Wire)	8 lbs.
CPF02 Coalescing Carbon Filter for Puncturing Unit	1 lb.

SAFETY

- Allows puncturing of aerosol cans without worker contact. The aerosol can is secured in the AEROSOLV housing. With a press of the handle, the puncture pin moves through a fluid-tight chamber and pierces the can.
- AEROSOLV leaves no sharp edges or crushed metal. The only effect on the can is a small, smooth-edged hole.
- Residual contents are safely collected in the drum.
- AEROSOLV Combination Filter coalesces V.O.C.'s for collection in filter reservoir.
- Anti-Static Wire enhances operational safety, required under several Federal and Local codes.
- AEROSOLV is designed to prohibit unsafe usage; will not accept propane bottles or aerosol cans inserted "right side up."



AEROSOLV™ COMBINATION FILTER

- Threads directly into the 3/4" bung of any standard drum. Effective in filtering and collecting V.O.C.'s.
- The unique AEROSOLV combination filter comprises a coalescing lower portion, which removes airborne organic compounds, and an activated carbon upper portion, which absorbs odor. The coalescing portion combines submicrometer aerosol particulate into droplets which are gravitationally drained into the filter reservoir.
- Rain Hood on filter provides protection from elements for outdoor use.

COMPLIANCE

- By bringing the compressed gas to atmospheric pressure, AEROSOLV achieves compliance with:
 - 40 CFR 251.7 (b) (1)
 - 40 CFR 251.7 (b) (1) (B) (2)
 - 40 CFR 251.23 (a) (6)
- Once relieved of pressure, the punctured aerosol cans are not regulated (OSWER Directive 9432.01 (80)) and may be recycled as scrap metal.
- Residual liquids, released by AEROSOLV and collected in drum, may be eligible for reclamation through a hazardous waste handler, resulting in "waste minimization" credits.

LAB SAFETY

A Division of Science Applied Materials, Inc.
 P. O. Box 1908
 Janesville, WI 53547-1908
 Call Toll Free 1-800-366-6700
 1-608-754-2345 Telex 814788-7901

00517

NOV-10-1992 09:14 FROM GE SUPERABRASIVES

TO

95442329 P.03

11/05/92

15:08

8608 754 2343 3002

LAB SAFETY TECH.

004/012

AEROSOLV
Commonly Asked Questions

INTRODUCTION

AEROSOLV was developed as a solution to the expense of solid waste disposal of aerosol cans. RCRA regulations require that, unless relieved of pressure, aerosol cans be packed in a drum and manifested for solid hazardous waste disposal. A drum holds 96 cans and costs as much as \$1,500 for proper transportation and disposal. With AEROSOLV, the cans are not solid hazardous waste, but are fully recyclable.

PUNCTURING UNIT

Q How is it operated?

A The AEROSOLV unit threads directly to the 2" bung of a 55-gallon drum. The filter is installed on the 3/4" bung. Insert the aerosol can (inverted) into the AEROSOLV housing. Lower the sliding cap and lock into place. Then press the handle and immediately release. You will hear the contents being released into the drum.

Q Must AEROSOLV be installed only on 55-gallon drums?

A No, all industry standard drums have 2" and 3/4" bung openings. However, AEROSOLV should not be installed on a drum smaller than 20-gallon capacity to allow proper displacement of compressed gas released during puncturing.

Q How long does it take to puncture cans with AEROSOLV?

A It only takes 15-20 seconds for the can to be depleted after puncturing. One AEROSOLV customer has punctured as many as 1,200 on a one-man seven-hour shift.

Q Will the Puncturing Unit accept any size aerosol can?

A The system is designed to puncture any industry standard aerosol can, regardless of the length. The standard unit will not puncture "jumbo" or 1" mini-diameter cans. A special-order unit is available for that purpose.

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- Q How much can scrap steel recycling be increased with AEROSOLV?
- A Generally, four aerosol cans equal a pound of steel. American industry consumes 3-billion aerosol cans per year, amounting to 375,000 tons of steel.
- Q How many spent aerosols can be punctured into a drum?
- A Approximately 4,200 cans can be punctured before the drum is at maximum recommended capacity. The drum should not be filled more than 75% full, to provide proper displacement for the released contents.
- Q What do you do with the drum of liquids once it is at the recommended "full" capacity?
- A Simply call the waste handler who is handling your other hazardous waste.
- Q Can the liquids collected into the drums be reclaimed or recycled?
- A Yes, if chlorinated and non-chlorinated liquids are collected into separate drums. Chlorinated liquids (primarily solvents) can be recycled in-house as "parts cleaning solvent"; non-chlorinated liquids (primarily paints) can be reclaimed. Either method may qualify for "waste minimization credit".
- Q Are there any aerosols that should not be co-mingled when collecting into the drum?
- A Yes, caustics (such as oven cleaners) and pesticides should not be collected into a drum with other liquid residuals. They can, however, be collected into segregated single-content drums designated either "pesticides only" or "caustics only".
- Q Are all aerosols considered hazardous waste?
- A Yes, but not because of the primary product they contained. Spent aerosol cans would be considered empty, and therefore exempt from regulation, were it not for the fact that the propellant compressed gas is reactive to heat and is still present in an empty can (40 CFR 261.23 (a)(6)).
- Q Is using puncturing the aerosol can with AEROSOLV considered treatment?

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 11/03/92 15:09 008 754 2345 3002 LAB SAFETY TECH. 008/012

A No, according to the Office of Solid Waste and Emergency Response (OSWER), which stated that "the puncturing, crushing, or shredding of non-empty aerosol cans which contain hazardous waste does not constitute treatment pursuant to 260.10, and a RCRA permit or compliance with other hazardous waste management regulations is not required. (Source Document: OSWER Directive #9432.012 (80)).

Q What does it cost to dispose of the collected liquids in the drum?

A A Hazardous Waste handler will charge from \$275 to \$350 per 55-gallon drum for proper transportation and recycling, reclamation and/or disposal. This represents the total disposal cost for the residual liquids of 4,200 spent aerosol cans. This compares to solid waste disposal cost of unpunctured aerosol cans of \$650 to \$1,200 per 96 cans. On a direct comparison of 4,200 spent cans, the cost saving with AEROSOLV ranges from \$28,000 to \$52,000.

FILTER

Q How does the filter work?

A It is composed of two parts: a coalescing lower portion and an activated carbon upper portion. The coalescing portion collects microscopic airborne liquids from the gas and combines them into droplets which collect within the filter chamber. The activated carbon absorbs oxygen and odor from the "dry" gas which has passed through the coalescing portion. It effectively reduces VOC's from the escaping gas.

Q Does any compressed gas remain in the drum?

A The compressed gas seeks escape through the point of least resistance, which is the filter. However, a minimal amount of gas may remain in the drum. By leaving the "last" can punctured within the AEROSOLV housing until puncturing is resumed, an effective prolonged seal can be maintained.

Q Can pressure build in the drum?

A The filter relieves at 3 psi, eliminating the possibility of unsafe pressure within the drum. Additionally, the activated carbon portion of the filter has been designed to serve as a highly efficient flame arrester.

Q When does the filter need to be changed?

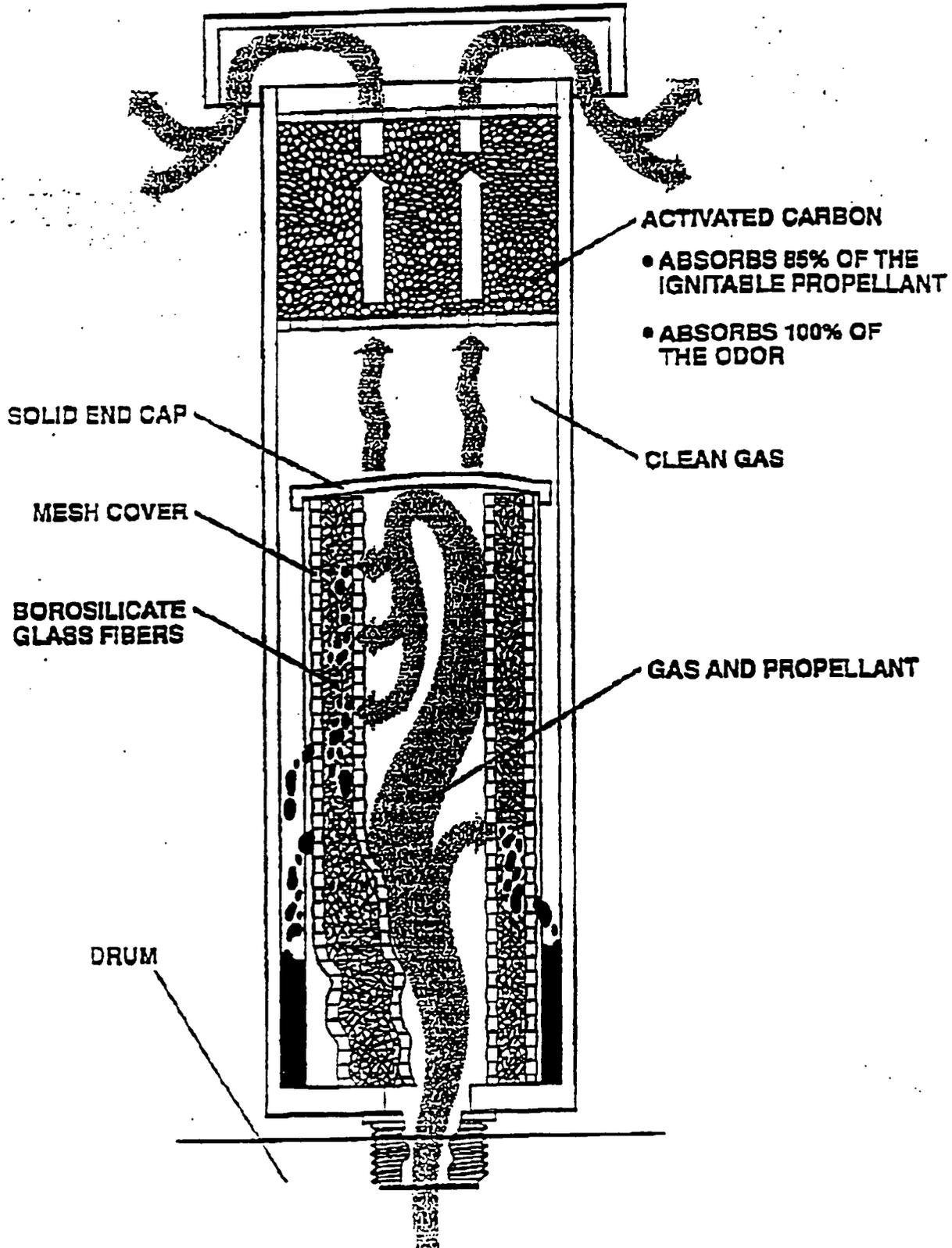
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- A After 45-60 days, or after puncturing 1,200 spent aerosols, whichever comes first, because the activated-carbon will reach its maximum absorption level.
- Q Once used, is the filter considered hazardous waste?
- A The filter is designed to allow draining prior to disposal. If drained, the filter would stay below the 3% by weight EPA allowance for non-regulated disposal. To drain filter, locate drain cock at bottom edge. Remove drain cock cover while holding filter over AEROSOLV housing. Drain filter through housing directly into drum.
- Q Does the procedure require any permitting from the Air Quality Control Board?
- A No, permitting is only required when processing 50 pounds or more per hour, which is not the case with aerosol cans. Permitting generally applies to gas-filling facilities: welding gases, large gas cylinders, etc.

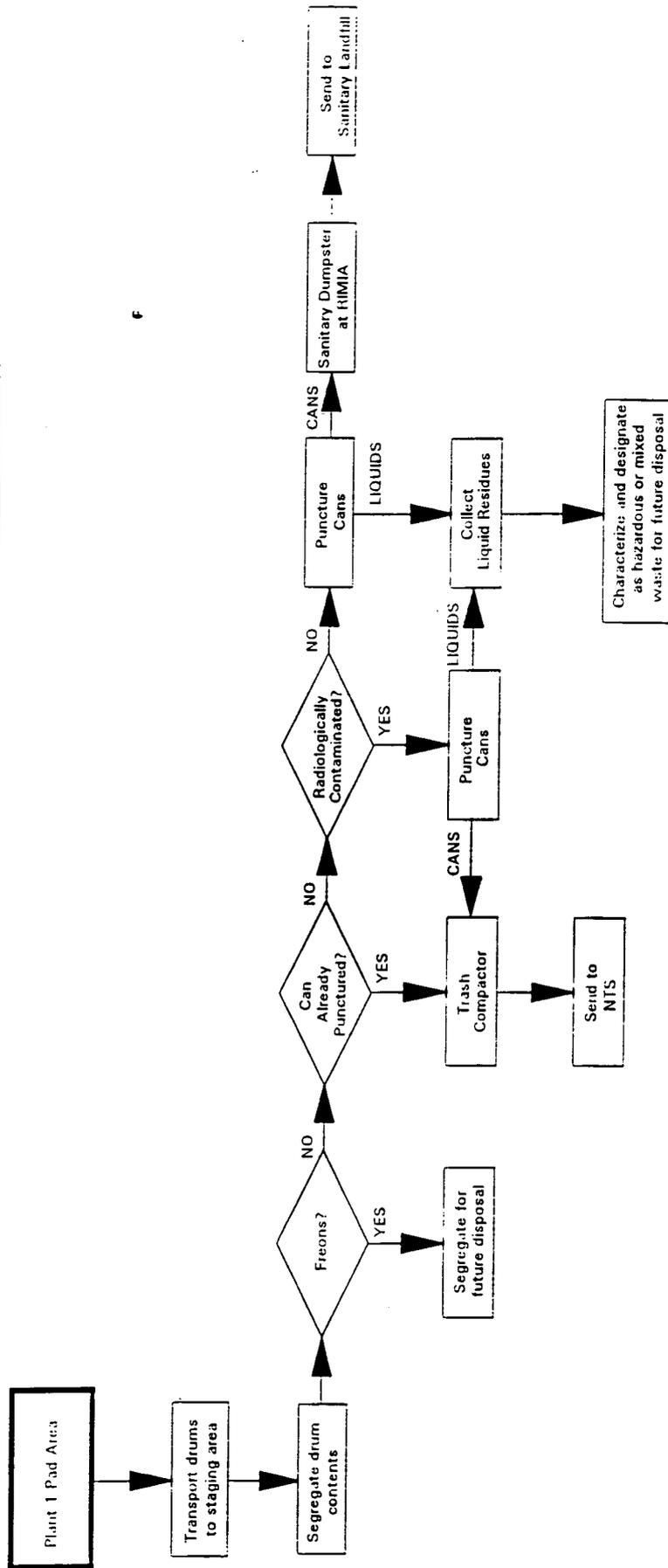
ANTI-STATIC WIRE

- Q Why is the anti-static wire necessary?
- A In many cases, there is an OSHA requirement for grounding of "vessels" to prevent any build-up of static electricity being transferred to a drum. The Anti-Static Wire grounds the drum and the AEROSOLV unit simultaneously. The AEROSOLV system itself is not capable of generating a static charge. It is non-powered and utilizes a non-sparking carbide puncture pin.



ENCLOSURE 2

Flow Sheet of the Work Plan for the Disposal of Aerosol Cans



ENCLOSURE 3



Ohio Environmental Protection Agency

Box 1049 1800 WaterMark Dr
Columbus, Ohio 43266-0149
644-3020
(614) 644-2329

7756

George V. Voinovich
Governor

Donald R. Schregarous
Director

December 23, 1992

Daniel L. Olson
Environmental Program Specialist
GE Superabrasives
6235 Huntley Road
Worthington, Ohio 43229

Re: Puncturing And Crushing Aerosol Cans

Dear Mr. Olson:

The aerosol can issue is complicated because aerosol cans may be hazardous under several categories. These categories include ignitibility, reactivity, P or U listing, corrosivity, toxicity (TCLP), or any combination of these parameters. An additional complication is that removal of the contents from aerosol cans may be in violation of a prohibition from treating hazardous waste without first obtaining the appropriate hazardous waste permit. Many landfill operators and waste handlers may not accept aerosol cans because of safety and liability concerns. Additionally, volatile chemicals or gases (eg. CFCs) released to the atmosphere from aerosol cans are subject to regulation by OSHA and Ohio's Division of Air Pollution Control (DAPC).

You propose to use a device (Aerosol Can Depressurizer) to remove liquids from aerosol cans. Before cans are processed, they will be segregated. The aluminum and stainless steel unit consist of two interconnected sections which can be affixed to a 55 gallon steel drum receptacle. Contents are removed from a can by placing the can in the unit housing and lowering the handle to actuate the punch. The other section contains a filtering system which removes airborne aerosols in the lower filter and vapors in the upper activated carbon unit.

The specification sheet you attached stated that recovered liquids, predominantly chlorinate solvents can be recycled "in-house" as "parts cleaning solvents," and that non-chlorinated

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Daniel L. Olson
GE Superabrasives
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liquids, mainly paints, can be reclaimed. Cans, from which residual liquids have been removed, can be recycled as scrap metal. The November 9, 1992 FAX stated that spent liquids will be sent to General Electric for reclamation or disposal. You referenced statistics showing consumption of approximately 3 billion aerosol cans per year by industry, equivalent to 375,000 tons of steel.

Of primary concern to you is the cost incurred in disposing of numerous waste aerosol cans. In our November 9, 1992 phone conversation, you stated that disposal costs range upward to \$1,800 per 55 gallon drum, containing 75 to 100 cans.

Under Ohio's hazardous waste rules, you are required to evaluate the wastes you generate to determine if they are hazardous. This is also true for aerosol cans. To avoid costly and detailed regulatory requirements, aerosol can products should be completely consumed for their intended purpose, or be returned to the manufacturer/distributor as unused products.

The hazardous wastes parameters specified above are probably the most likely to be encountered when evaluating aerosol cans. To aid you in your determinations, you should obtain the appropriate material safety data sheets (MSDS) or note pertinent information (eg. ingredients, flammability, etc.) on the can. We view puncturing aerosol cans to remove the contents not requiring a hazardous waste permit, provided: (1) hazardous liquids are appropriately containerized and managed, (2) volatiles or gases are trapped or collected by filter media or other filtration systems, and managed accordingly, (3) media or devices satisfying "2" must be appropriately characterized and managed, prior to disposal, and (4) cans do not meet the characteristics of ignitibility or reactivity.

It is not likely that cans will satisfy the reactivity characteristic, specifically, detonate or explode when subjected to a strong initiating source or if heated under confinement [OAC 3745-51-23 (A)(6)], except for some highly ignitable compounds (eg. ethers). Since there are few guidelines for determining or measuring ignitibility and reactivity, you may have to use available data or use your knowledge of the product. If you are not sure as to the applicability of the ignitibility and reactivity characteristics, you may wish to contact this Agency.

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Another complication is the intended use of residuals removed from aerosol cans and the cans from which hazardous residuals have been removed. If a can is considered hazardous only for the contents removed from the can, and the contents and can are legitimately recycled, for example, as ingredients in the manufacture of viable products, we may not consider such cans subject to hazardous waste requirements. This may be applicable to your situation regarding the reference to recycling the empty can as scrap metal, and also recycling the contents (solvents).

In summary, you may puncture and dispose of/recycle hazardous waste aerosol cans without first obtaining a hazardous waste permit, provided (1) the contents removed are managed appropriately (eg. recycled, disposed), (2) the puncturing device only handles one can at a time, (3) the can does not exhibit ignitibility or reactivity characteristic, (4) volatile chemicals or gases are collected by an approved filtering system, (5) cans from which the contents have been removed are managed appropriately, preferably recycled, and (6) only cans generated on-site are managed in this device.

In our last phone conversation, you indicated that efforts will be made to segregate or remove cans exhibiting the characteristics of ignitibility or reactivity. This device may also be subject to Ohio's air pollution standards for volatile releases. Please contact the Division of Air Pollution Control (DAPC) for a specific determination regarding air pollution control requirements.

Please note that this determination is specific to the Aersolv equipment discussed in your fax transmissions of November 4, 9, and 10 (1992) and does not generically apply to similar devices, pending review by the Ohio EPA.

CC-511

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Daniel L. Olson
GE Superabrasives
Page Four

I hope this answers your questions. You are advised to contact the Agency for further details or update on the status of aerosol cans. You may contact either me or Jennifer Hille at (614) 644-2956.

Sincerely,

Arthur L. Coleman, Jr.

Arthur L. Coleman, Jr.
Division of Hazardous Waste Management
RCRA Technical Assistance Section

ALC/pas

Attachments:

cc: Edward A. Kitchen, Manager, RCRA TAS, DHWM
Jennifer Hille, Environmental Supervisor, RCRA TAS, DHWM
Judy Brazis, RCRA TAS, DHWM
Lundy Adelsberger, Supervisor, DHWM, CDO (w/attachments)
Engineering Section, DAPC
DO Unit Supervisors