

A black and white photograph of a mechanical device, likely a medical ventilator or respirator. The device features a large, circular, clear lens or window. Inside this window, a complex assembly of metal parts is visible, including a central cylindrical component and various connecting tubes and valves. A hand is seen interacting with the device, possibly adjusting a control. The overall appearance is industrial and technical.

aerosol^{iv}[®]

MODEL
7000

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7000 INSTRUCTION MANUAL

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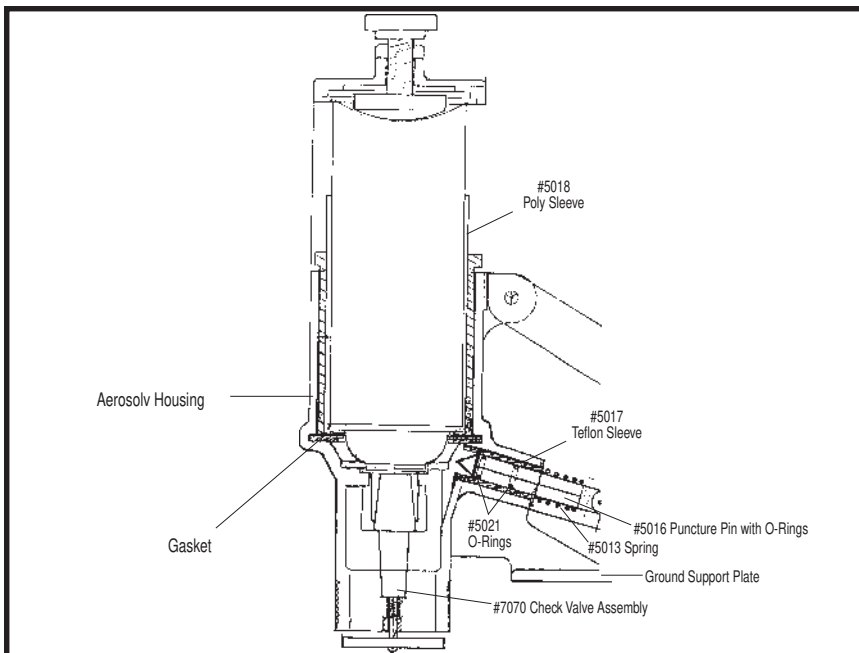
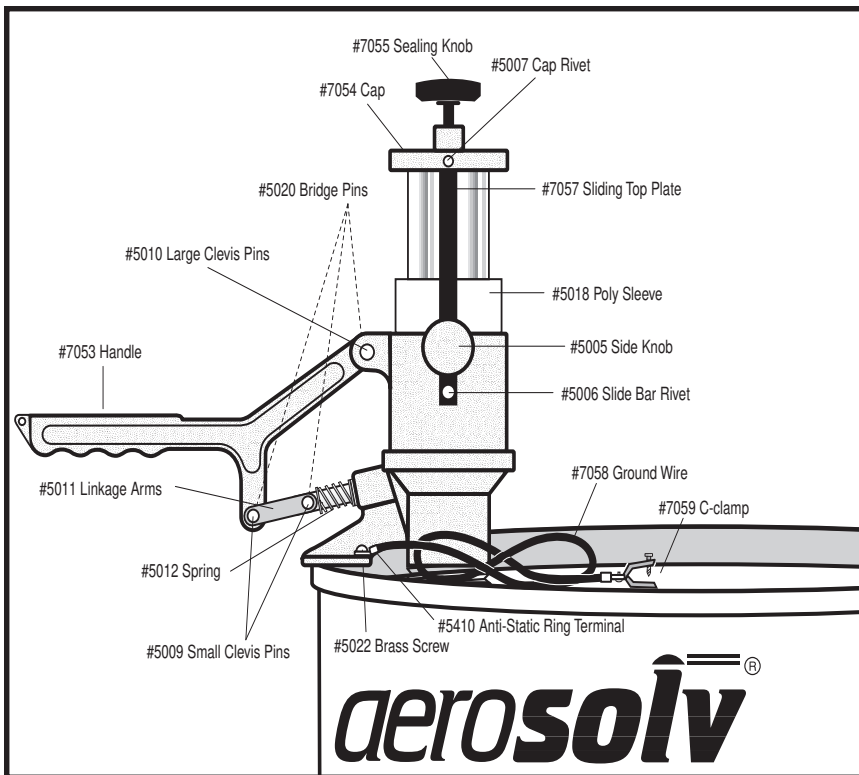
INTRODUCTION TO THE AEROSOLV® SYSTEM CAN RECYCLING SYSTEM

The Aerosolv® Aerosol Can Recycling System simplifies aerosol can disposal, safely and efficiently. The Aerosolv® puncturing unit threads directly to the 2" bung of any 30-gallon or 55-gallon drum. Simply insert an inverted aerosol can into the Aerosolv® unit and lock the sliding top plate. With a press of the handle, a carbide-tipped puncture pin pierces the dome of the can. The contents are immediately dispersed to the receiving drum; the particulate laden propellant is coalesced in the first stage of the Aerosolv® filter providing unrestricted propellant flow through the Carbon Colormetric Indicator. The colormetric indicator has a sight window labeled to indicate replacement intervals. Color change darkens from violet to black visually indicating carbon cartridge replacement intervals.

The result? Recyclable scrap steel.

After processing aerosol cans with the Aerosolv® system, you've got an empty steel can with a small, smooth-edged hole. In as little as five seconds. No spills. No jagged edges.

And, no compressed gas, so its ready for recycling with other scrap steel.



AEROSOL CAN SEGREGATION AND CHARACTERIZATION:

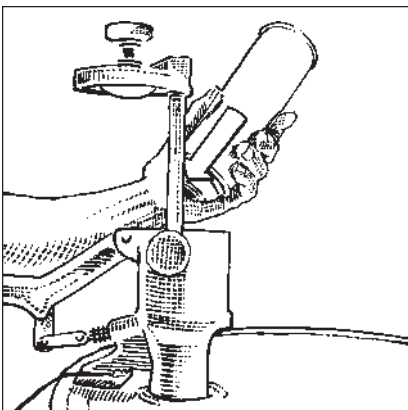
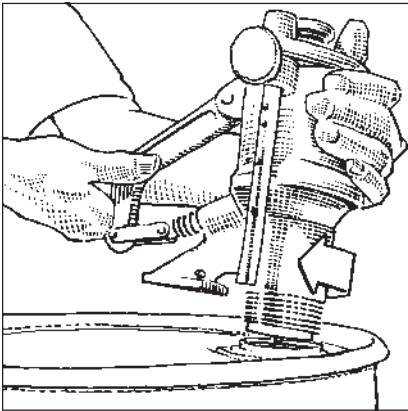
Appendix I is provided as an example of an aerosol can segregation and characterization scheme. Users of the Aerosolv[®] unit may elect to use this scheme or develop their own. Aerosol products can generally be designated by one of the aerosol classes identified in Table 3 of the appendix. Tables 1 and 2 further define the types of aerosol products that comprise each aerosol class.

SAFETY INSTRUCTIONS

1. Wear safety goggles while operating the Aerosolv[®] System.
2. DO NOT use Aerosolv[®] while smoking or near open flame.
3. Install Anti-Static Wire to properly “grounded” drum.
4. DO NOT use Aerosolv[®] on a drum with less than 30-gallon capacity.
5. Remove Aerosolv[®] to an empty drum once collection drum is 70% full (when contents reach within 10" of the top).
6. Always engage sliding top plate and sealing knob against can being punctured.
7. Always operate Aerosolv[®] System outdoors or in a well ventilated area. Escaping propellants are heavier than air and may collect at point of generation.
8. When venting operation is complete, insert padlock to lock system out from unauthorized use.
9. Do not use the Aerosolv[®] unit for pesticides, herbicides, adhesives, or corrosive materials with pHs less than 2.0 or greater than 12.5 (i.e., Easy-Off[®], corrosive acidic, and alkaline products) Comingling incompatible can contents can be hazardous. Operator must develop a segregation scheme to ensure safe operation and liquid collection.
10. Process like aerosol cans to the same collection drum for recycling (e.g., paints with paints, cleaners & degreasers with same).

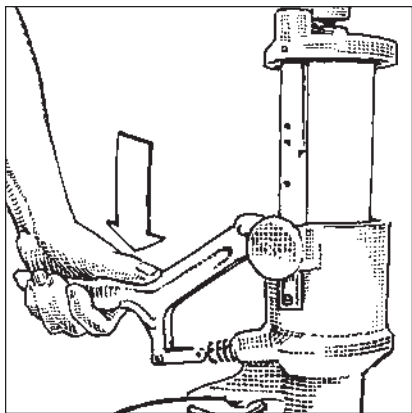
AEROSOLV® UNIT INSTALLATION

- i) Obtain a liquid collection drum possessing two standard bung holes: one large 2" bung hole; and one small $\frac{3}{4}$ " bung hole. Select a receptacle that is compatible with the aerosol product to be captured and inspect the receptacle for deterioration or signs of breached integrity. Ensure the bung caps for each hole are in place. Remove the bung caps and store them in a safe place so that they may be used later. Thread the Aerosolv® unit into the 2" bung hole as illustrated. Rotate clockwise until ground support plate firmly engages drum rim. Thread combination filter into the $\frac{3}{4}$ " bung of the liquid collection drum prior to operating.
- ii) Attach ring terminal of Anti-Static wire to brass screw on the Aerosolv® Ground Support Plate. Attach C-clamp of Anti-Static wire to any nearby confirmed ground source.
- iii) Electrical grounding must comply with the applicable state and federal regulations.



AEROSOL CAN PUNCTURING USING THE AEROSOLV® TECHNOLOGY:

- 1) The volume of liquid accumulating in the liquid collection drum should be noted prior to commencing operations.
Procedures for determining when the collection receptacle is full are as follows:
 - a) Obtain a 12 inch plastic ruler and a rag.
 - b) Open the collection receptacle and lower the ruler into the container such that the top of the ruler is one-half inch above the rim of the receptacle bung hole.
 - c) Slowly raise the ruler and inspect it to determine whether the liquid level in the collection receptacle reached the ruler level when submerged.
 - d) If the liquid level in the collection container actually reached the ruler when submerged, secure the container and wipe off the ruler using the rag. If the liquid level has not yet reached the ruler, continue to puncture aerosol cans in accordance with the Aerosolv® manufacturer's operation and maintenance instructions. Repeat steps 1 through 4 to check the liquid level every 500 cans.

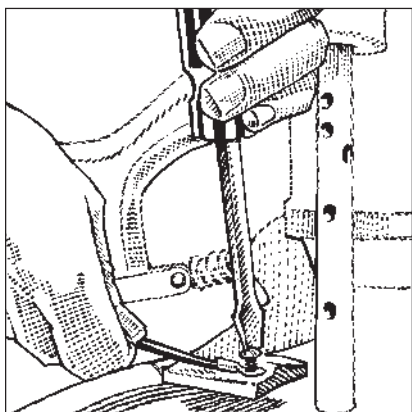


2) Insert aerosol can, NOZZLE END DOWN, into the Aerosolv® housing sleeve, so that the shoulder of the can rests on the internal gasket. *Be sure to remove cap from aerosol can prior to insertion.*

3) Lower sliding top plate over the bottom of the inverted can and firmly engage against plastic sleeve. Tighten the lock knob on the side of the housing. Tighten sealing knob to further depress aerosol can to internal silicon gasket.

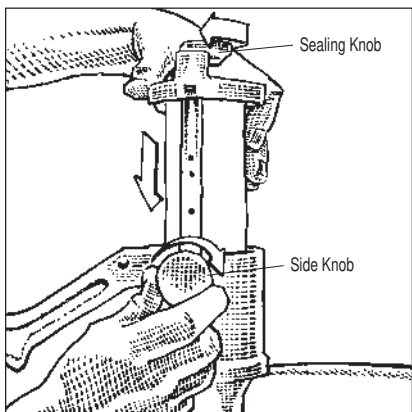
4) Push handle down firmly until completely depressed and **slowly** relieve the pressure such that the puncture pin evacuates the can. Allow the contents of the can to drain into the collection drum (about 20 seconds).

5) When the aerosol can's contents have been completely discharged (about 20 seconds or when can contents are obviously discharged), turn sealing knob counter-clockwise 3 rotations, unfasten the lock knob and lift the can to the brim of the Aerosolv® housing. Some residual fluid may be entrapped between the lip of the can and the hole(s) created by the puncturing device. Tip the can to allow the residual to discharge into the unit. *A rag may be used to remove any remaining residual from around the can.* Remove the can from the housing, lower sliding top plate to rest on plastic sleeve to seal the collection drum, and manage the empty can appropriately.



6) Continuously monitor the colorimetric indicator to determine when the carbon in the carbon canister is approaching saturation. If the indicator indicates that the carbon is saturated, discontinue puncturing and replace the carbon canister.

7) When Aerosolv® operations are complete, the unit should be locked out to avoid unauthorized use. If the collection drum is more than 70% full, secure the drum and do not return it to use. The unit may also be secured in place by inserting a padlock to prevent unauthorized use. The padlock is inserted in the through-hole located on the slide bar. Reference page 9.



AEROSOLV® MAINTENANCE:

When Aerosolv® operations conclude, inspect the gaskets and seals for deterioration or contamination and replace or remedy as necessary.

- **Puncture Pin:** This pin should be inspected and cleaned after puncturing 500 cans. While Aerosolv® unit is attached to the collection drum, remove #5010 Large Clevis Pin allowing the entire handle and puncture pin to be removed from Aerosolv® housing.
- Inspect the (2) O-rings for deterioration and visible wear. Remove worn o-rings and replace as necessary.
- Clean the entire assembly with Aerosolv® Free Cleaner and apply liberal coating of Lithium grease prior to assembly. Reference page 5
- **Gasket Replacement:** Visually inspect the gasket daily prior to each use. If the gasket is cracked or deteriorated to the point that it no longer provides an adequate seal, replace it by holding the gasket and lifting out. To insert the new gasket into the housing, push downward with the #5018 Poly Sleeve snapping into place.
- **Check Valve Assembly:** This assembly should be inspected after puncturing 1,000 cans. Remove Aerosolv® unit from collection drum and inspect for seal quality. Clean area thoroughly with Aerosolv® Free Cleaner inside and out. Apply (3) wraps of Teflon tape to 2" threads that attach to the collection drum prior to installation.
- **Aerosolv® Puncturing Unit:** The entire unit should be wiped down after each use. Clean the entire unit daily with the Aerosolv® Free Cleaner and apply a liberal coating of Lithium grease to all moving parts.

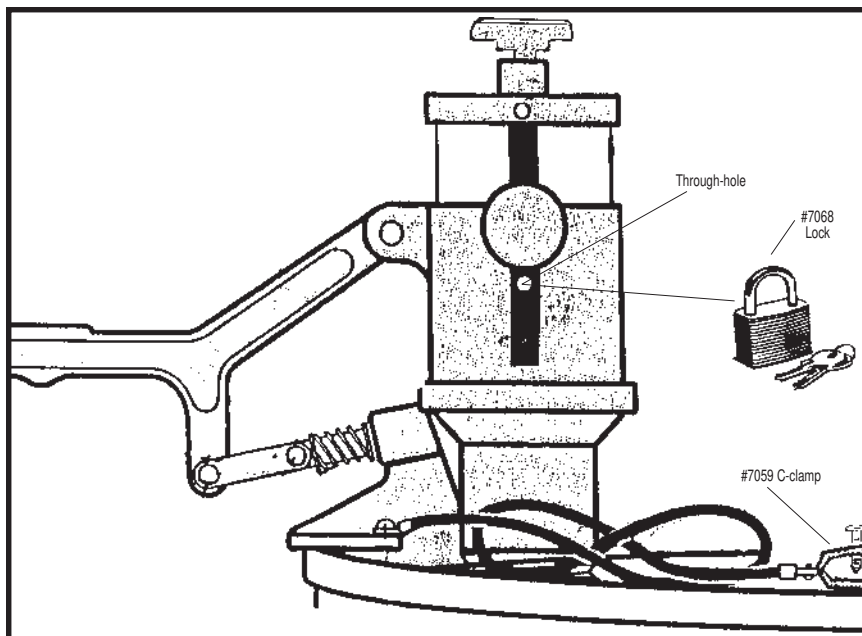


TABLE 1-1
SAMPLE AEROSOL CAN
SEGREGATION SCHEME

Aerosol Species	Common Examples of Speciation
1 Ignitable solvent product w/flammable propellant	Prestone® Starting Fluid, Keen Limited® Zeus® Butane, Malter® Dimethylsilicone Lubricant Compound, Liquid Wrench® WD-407
2 Hydrocarbon product w/flammable propellant	OMC® Anticorrosion Spray, Sprayon® Gear Lube, Panel® Lubricant with Teflon®, Zep® Cutting Oil, Solid Film Lubricant, Penetrating Fluid
3 Halocarbon product w/flammable propellant	Freon 114, Degreaser
4 Halocarbon product w/nonflammable propellant	Dichlorotetrafluoroethane, Freon 113, Berryman® Brake Cleaner,
5 Hydrocarbon product w/nonflammable propellant	Nut Buster® Penetrating Oil, Corrosion Preventative Compound, General Purpose Lubricating Oil
6 Toxic constituent containing product w/flammable propellant	Enforcer® Wasp and Hornet Killer, D-trans Allethrin
7 Toxic constituent containing product w/nonflammable propellant	PT 270 Dursban®, PT 515 Wasp Freeze®, PT-240 Perma Dust®, PT-279 Engage7
8 Corrosive product with flammable propellant 8A: Acidic Product 8B: Alkaline Product	Easy Off® Oven Cleaner, Degreaser
9 Corrosive product with nonflammable propellant 9A: Acidic Product 9B: Alkaline Product	Oven Cleaner, Degreaser
10 Non-toxic product with flammable propellant	Lemon Pledge®, Glade® Air Freshener, Pam® Coating
11 Listed product with flammable propellant	Block Cleaner, Hi-Tech Safety Solvent® 1,1,1-trichloroethane, Sprayon® 1,1,1- trichloroethane
12 Listed product with nonflammable propellant	Bulk Chemical® 1,1,1-trichloroethane technical, Plaze Inc.® 1,1,1-trichloroethane technical
13 Paints with flammable propellants	Krylon® Pittsburgh®
14 Adhesives with flammable propellants	Super 7® Adhesive Spray®, 99MA High Track Spray-A-Gasket 800657

TABLE 1-2 RECOMMENDED AEROSOL PRODUCT CONSOLIDATION SCHEME

Consolidation Family	Aerosol Species Included in Family	Rationale for Consolidating Species
1 POL: Petroleum, Oil, and Lubricants	(2) Hydrocarbon product/ flammable propellant (15) Hydrocarbon product/ nonflammable propellant	Recovered POL can be recycled and used for fuel blending. Propellants captured from POL aerosol cans are adsorbed on the activated carbon filter. Saturated activated carbon cartridges are properly disposed of as non-regulated refuse.
2 Paints	(13) Compatible paints	Paints are recovered and stored in appropriate containers. Recovered paints are managed as hazardous wastes and either recycled or transferred to an appropriate treatment facility. Propellants captured from paint aerosol cans are adsorbed on the activated carbon filter. Saturated activated carbon cartridges are properly disposed of as non-regulated refuse.
3 Adhesives	(14) Compatible adhesives	Adhesives are recovered and stored in compliant containers. Recovered adhesives are managed as hazardous waste and either recycled or transferred to an appropriate treatment facility. Propellants captured from adhesive aerosol cans are adsorbed on the activated carbon filter. Saturated activated carbon cartridges are properly disposed of as non-regulated refuse.
4 Compatible Alkaline Cleaners	(8B) Corrosive product/ flammable propellant (9B) Corrosive product/ nonflammable propellant	If compatible, aqueous alkaline products from aerosol cans are recovered and consolidated with similar products. These materials can be transferred to an appropriate treatment facility. Propellants captured from these aerosol cans are adsorbed on the activated carbon filter. Saturated activated carbon cartridges are properly disposed of as non-regulated refuse.
5 Compatible Acidic Cleaners	(8A) Corrosive product/ flammable propellant (9A) Corrosive product/ nonflammable propellant	If compatible, aqueous acidic products from aerosol cans are recovered and consolidated with similar products. These materials can be transferred to an appropriate treatment facility. Propellants captured from these aerosol cans are adsorbed on the activated carbon filter. Saturated activated carbon cartridges are properly disposed of as non-regulated refuse.

Continued on next page

TABLE 1-2
RECOMMENDED AEROSOL PRODUCT
CONSOLIDATION SCHEME (CON'T)

Consolidation Family	Aerosol Species Included in Family	Rationale for Consolidating Species
6 Halocarbon Solvents	(3) Halocarbon product/ flammable propellant (4) Halocarbon product/ nonflammable propellant	Recovered halocarbon solvents may be distilled and reutilized or transferred to an appropriate treatment facility. Propellants captured from halocarbon aerosol cans are adsorbed on the activated carbon filter. Saturated activated carbon cartridges are properly disposed of as non-regulated refuse.
7 Ignitable Solvents	(1) Ignitable solvent product/ flammable propellant	Recovered ignitable solvents may be distilled and reutilized, recycled as fuel, or transferred to an appropriate treatment facility. Propellants captured from these aerosol cans are adsorbed on the activated carbon filter. Saturated activated carbon cartridges are properly disposed of as non-regulated refuse.
8 Listed Products	(11) Listed product/ flammable propellant (12) Listed product/ nonflammable propellant	Listed products may be distilled and reutilized, recycled, or collected in isolated vessels and managed as listed hazardous wastes. Propellants captured from these aerosol cans are adsorbed on the activated carbon filter. Saturated activated carbon cartridges are properly disposed of as non-regulated refuse.
9 Toxic Products	(6) Toxic product/ flammable propellant (7) Toxic product/ nonflammable propellant	Toxic products are either recycled or managed as hazardous waste and transferred to an appropriate treatment facility. Propellants captured from these aerosol cans are adsorbed on the activated carbon filter. Saturated activated carbon cartridges are properly disposed of as non-regulated refuse.
10 Non-Toxic Products	(10) Non-toxic product/ flammable propellant	Non-toxic products are managed appropriately. Propellants captured from these aerosol cans are adsorbed on the activated carbon filter. Saturated activated carbon cartridges are properly disposed of as non-regulated refuse.

TABLE 1-3 AEROSOL CONSOLIDATION CLASSES

Consolidation Class	Aerosol Families Included in Class	Class Characteristics
1 Petroleum Hydrocarbons (non-halogenated)	(1) POL (2) Paints ¹ (7) Ignitable Solvents (8) Listed Products ² (9) Toxic Products ³ (10) Non-Toxic Products ³	See Footnotes 1, 2, and 3
2 Resinous Materials	(3) Adhesives	Adhesives and other resinous coagulating materials tend to diminish the quality of otherwise recyclable solvent products. Further, these products accelerate the deterioration of process equipment.
3 Aqueous Liquids	(4) Alkaline Cleaners ⁴ (5) Acidic Products ⁴ (9) Toxic Products ⁵ (10) Non-Toxic Products ⁵	See Footnotes 4 and 5
4 Halocarbon Solvents	(6) Halocarbon Solvents	Many petroleum products can not be recycled when contaminated with halocarbons. Though, halocarbon solvents are compatible with and can typically be commingled with other petroleum products and solvents.
5 Alkaline Products	(4) Corrosive Alkaline Products	Alkaline products potentially present a threat of heat generation through acid-base or oxidation-reduction reactions.
6 Acidic Products	(5) Corrosive Acidic Products	Acidic products potentially present a threat of heat generation through acid-base or oxidation-reduction reactions.

¹ Paints may either be consolidated separately or consolidated with other petroleum and petroleum-based products. If the resulting waste is going to be incinerated or fuel blended (provided the paint solids do not compromise the quality of the mixture), the paints may be consolidated with other products. If the resulting waste is to be recycled or otherwise utilized, the paint should be managed independently.

² Listed petroleum and petroleum-based wastes may be commingled with other petroleum products if the resulting mixture is characterized in accordance with the Mixture and Derived from Rules (40 CFR, 261.3), and if the mixture will be either incinerated or fuel blended. Listed wastes may not be commingled with other wastes if the resulting mixture is not characterized and managed as a listed hazardous waste.

³ Toxic and non-toxic petroleum products may be commingled with other petroleum products unless the resulting mixture is intended for specific recycling or reuse efforts and the addition of these products significantly diminishes the quality of the final product. Non-petroleum products may not be commingled with petroleum products.

⁴ Aqueous acidic and alkaline products whose pH remains between 4.0 and 10.0 may be commingled as long as the constituents that comprise the solutions are compatible. Products exhibiting pHs significantly greater than 10.0 or less than 4.0 should not be commingled. Additionally, non-aqueous solutions should not be commingled with aqueous solutions.

⁵ Aqueous toxic and non-toxic products may be commingled with other aqueous wastes provided the constituents that comprise the products are compatible with each other. The characterization of the resulting mixture must be similar to that of the products prior to introduction.

TABLE 1-4 AEROSOL CLASS COMPATIBILITY CHART

	petroleum hydrocarbons	resinous materials	aqueous liquids	halocarbon solvents	alkaline products	acidic products
petroleum hydrocarbons	yes	yes ⁶	yes ⁷	yes ⁶	no ⁸	no ⁸
resinous materials	yes ⁸	yes	no ⁹	yes	no	no
aqueous liquids	yes ⁷	no ⁹	yes	yes ¹⁰	yes	yes
halocarbon solvents	yes ⁶	yes	yes ¹⁰	yes	no ¹¹	no ¹¹
alkaline products	no ⁸	no	yes	no ¹¹	yes	no
acidic products	no ⁸	no	yes	no ¹¹	no	yes

This chart describes aerosol Classes that are physically compatible

TABLE 1-5 AEROSOL CLASS CONSOLIDATION CHART

	petroleum hydrocarbons	resinous materials	aqueous liquids	halocarbon solvents	alkaline products	acidic products
petroleum hydrocarbons	yes	no	no	no	no	no
resinous materials	no	yes	no	no	no	no
aqueous liquids	no	no	yes	no	no	no
halocarbon solvents	no	no	no	yes	no	no
alkaline products	no	no	no	no	yes	no
acidic products	no	no	no	no	no	yes

This chart describes aerosol Classes suitable for commingling

⁶ Refer to recommended consolidation chart.

⁷ petroleum hydrocarbons are compatible with but not typically soluble in aqueous liquids. Refer to recommended consolidation chart.

⁸ petroleum hydrocarbons and corrosive materials are typically compatible. However, some corrosive materials are incompatible with petroleum hydrocarbons. As such, for purposes of simplicity, this chart recommends not commingling the two.

⁹ some resinous materials react adversely with water. This chart reflects conservative management.

¹⁰ halocarbons are compatible with but not typically soluble in aqueous liquids. Refer to recommended consolidation chart.

¹¹ halocarbon solvents and corrosive materials are typically compatible. However, some corrosive materials are incompatible with halocarbons. As such, for purposes of simplicity, this chart recommends not commingling the two.

Notes

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