

217/785-5151

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT - RENEWAL
NESHAP SOURCE

PERMITTEE

Hu-Friedy Manufacturing Company
Attn: Plant Engineering Manager
3232 North Rockwell Avenue
Chicago, Illinois 60618

Application No.: 81080031 I.D. No.: 031600BTJ
Applicant's Designation: CN 78-134 Date Received: May 17, 2000
Subject: Manufacture of Dental Instruments
Date Issued: October 23, 2000 Expiration Date: October 23, 2005
Location: 3232 North Rockwell Avenue, Chicago, 60618

This permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of the following equipment, pursuant to the above-referenced application:

- Three Vapor Degreasers (VD1, VD2, and VD3)
- Acid Tank (EP-1)
- Electropolishing Tanks (EP2, EP3, EP4, EP5)
- Heat Treat Ovens (HT1-HT4)
- Heat Treat/Adhesive Curing Oven (HT5 & HT6)
- Adhesive Application Operation

This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., volatile organic material (VOM) and hazardous air pollutants (HAPs) from the source to less than major source thresholds, i.e., VOM to less than 25 tons per year, and HAPs to less than 10 tons per year of any single HAP and 25 tons per year of any combination of such HAP). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program permit. The maximum emissions of this source, as limited by the conditions of this permit are described in Attachment A.
 - b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
 - c. This permit supersedes all operating permit(s) for this location.
- 2a. The three open top vapor degreasers VD1, VD2, and VD3 are subject to

40 CFR Part 63, Subpart T - National Emission Standards for Halogenated Solvent Cleaning. The Illinois EPA is administering this regulation in Illinois on behalf of the United States EPA under a delegation agreement. The United States EPA issued this final rule on December 2, 1994.

- b. The Permittee must be in compliance with 40 CFR Part 63, Subpart T - National Emission Standards for Halogenated Solvent Cleaning on or before December 2, 1997 or immediately upon startup whichever is later.
- c. The Permittee shall submit to the Agency an initial compliance certification by August 29, 1995. The initial compliance certification shall provide at a minimum:
 - i. The name and location of the permitted facility;
 - ii. Identification of the subject cleaner(s) and degreaser(s);
 - iii. The address and telephone number of the person responsible for the facility;
 - iv. The applicable emission limitation, equipment specification, or work practice;
 - v. The anticipated method of compliance;
 - vi. The control system(s) in use (if any);
 - vii. The design performance efficiency of the control system (if applicable);
 - viii. Certification that all permitted sources at the facility are in compliance with the applicable emission limitation, equipment specification, or work practice; and
 - ix. The time at which the facility's "day" begins if a time other than midnight local time is used to define a "day."
- 3a. Total combined emissions and solvent usage of the degreasers shall not exceed the following limits:

Solvent ¹ Usage		VOM ² Emissions		HAP ³ Emissions	
<u>(gal/month)</u>	<u>(gal/yr)</u>	<u>(lbs/month)</u>	<u>(tons/yr)</u>	<u>(lbs/month)</u>	<u>(tons/yr)</u>
129.7	1,557	1,582	9.5	1,582	9.5

¹ Trichloroethylene is used as the solvent for each degreaser.

² VOM (a.k.a., VOC) pursuant to 35 Ill. Adm. Code Part 211. Trichloroethylene is a VOM.

³ HAPs as identified in Section 112(b) of the Clean Air Act as amended in 1990. Trichloroethylene is listed as a HAP.

These limits define the potential emissions of VOM and HAPs and are based on the maximum usage and emissions. Emission limits are based on the solvent usage and a density of 12.2 lbs/gal for trichloroethylene. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months

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- b. The Permittee shall use only trichloroethylene as solvent. Any change in the type of solvent used must be permitted prior to making such change.
- 4a. For determination of compliance with the limits of this permit, solvent usage shall be determined by the following equation:

$$U = V - (W \times P)$$

Where:

U = Solvent usage for compliance determinations (gallons).

V = Virgin solvent^A added to the degreasers (gallons), as determined by daily addition log sheets.

W = Waste solvent^B removed from the degreasers and sent off-site for reclamation or disposal, as determined by monthly manifests.

P = Percent concentration of solvent in waste, as determined by analysis/testing^C.

^A For purposes of this permit, virgin solvent is defined as unused solvent.

^B For purposes of this permit, waste solvent is defined as used solvent.

^C The percent concentration of solvent in waste (P) shall be determined in accordance with USEPA Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW-846), Test Method 8260.

- b. Compliance with the monthly VOM and HAP emission limits shall be calculated using the solvent density (a trichloroethylene density of 12.2 lbs/gallon shall be used, as specified in the Material Safety Data Sheet) and the solvent usage (U) per month, as follows:

$$\begin{aligned} \text{Emissions} &= \text{solvent usage (U)} \times \text{solvent density (12.2)} \\ (\text{lbs/month}) &= (\text{gal/month}) \quad \times \quad (\text{lbs/gal}) \end{aligned}$$

- 5a. This permit is issued based on negligible emissions of VOM from the adhesive application operation, heat treat/adhesive curing ovens and heat treat ovens. For this purpose emissions from each emission source, shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/yr.
- b. This permit is issued based on negligible emissions of particulate matter from the heat treat/adhesive curing ovens and heat treat ovens. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.
- c. This permit is issued based on negligible emissions of nitrogen oxide from the acid tank. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.

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- d. This permit is issued based on negligible emissions of sulfuric and phosphoric acid mist from the electropolishing tanks. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.
- 6. The emissions of Hazardous Air Pollutants (HAP) as listed in Section 112(b) of the Clean Air Act shall be less than 10 tons/year of any single HAP and 25 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of all HAPs from this source not triggering the requirements to obtain a Clean Air Act Permit Program Permit (CAAPP), and Section 112(G) of the Clean Air Act.
 - 7. Each solvent cleaning machine must meet the following base design requirements, pursuant to 40 CFR, Part 63.463.
 - a. Each solvent cleaning machine must be equipped with an idling or downtime mode cover that completely covers the machine openings. The cover must be periodically inspected to ensure that it remains free of cracks, holes, and other defects. The cover must be closed at all times except during the cleaning, solvent removal, maintenance and monitoring of the degreasers.
 - b. A freeboard ratio of 0.75 or greater must be maintained for each solvent cleaning machine.
 - c. Each solvent cleaning machine must have an automated parts handling system that handles parts from initial loading to removal of cleaned parts. If the Permittee wants to use manual hoist, the Permittee must demonstrate to the Illinois EPA that the hoist can never exceed 11 feet per minute.
 - d. Each solvent cleaning machine must be equipped with a liquid and vapor level control device(s) that shuts off the sump heat if the sump liquid level drops to the sump heater coils or the

vapor level rises above the height of the primary condenser and such device(s) must be operational at all times.

- e. Each solvent cleaning machine must be equipped with a primary condenser to provide continuous condensation or rising solvent vapors and to create a controlled vapor zone.
 - f. Each solvent cleaning machine with lip exhaust control must be controlled by a carbon adsorption unit.
8. The Permittee shall comply with the following work and operational practice, requirements and post in the work place a one page summary of work practices, pursuant to 40 CFR Part 63.463(d).
- a. Conduct maintenance as per manufacturer's recommendation to ensure that each solvent cleaning machine works properly. Any alternative maintenance practice must be approved by the USEPA.

- b. Each solvent cleaning machine shall be covered to minimize air disturbances in the machine and the room at all times except during the cleaning, removal of solvent, maintenance and monitoring. If a cover cannot be used, air disturbances shall be controlled by Reduced Room Draft. Room draft shall not exceed 50 feet/minute.
 - c. i. A speed of 3 feet/minute or less shall be maintained between entry and removal of parts basket or parts.

or

ii. Parts basket or parts size shall be less or equal to 50% of the solvent air interface area.
 - d. If cleaning operation involves spraying, spraying must be performed within the vapor zone (i.e., a baffled or enclosed area of the solvent cleaning machine).
 - e. The Permittee must ensure that parts or parts basket are positioned so that solvent drains freely and parts basket or parts are not removed from the machine until parts are clean and solvent dripping has stopped.
 - f. During the startup, the Permittee must turn on the primary condenser prior to turning on the sump pump and during shutdown, turn off the sump heater prior to turning off the primary condenser.
 - g. The Permittee must add and remove solvent with leak-proof couplings. The end of the pipe or hose introducing or withdrawing the solvent be located beneath the liquid solvent surface (i.e., submerged filling) in the sump.
 - h. The Permittee must collect and store the waste solvent, still bottoms, and sump bottoms in a closed container. Absorbent materials such as sponges, fabric, wood, and paper products shall not be cleaned.
 - i. Each operator of a solvent cleaning operation must be ready to take and pass an Operator Test at any time during the normal operation of the plant.
9. Each solvent cleaning machine must meet the following control combination (freeboard refrigeration device and freeboard ratio of 1.0) requirements, pursuant to 40 CFR Part 63.463:
- a. For Freeboard Refrigeration Device (FRD), chilled air blanket temperature at the center of the air blanket shall not exceed

56.7°F while using trichloroethylene, respectively.

- i. The temperature measurements must be conducted on weekly basis at the center of the air blanket above the vapor zone during the idling mode. The temperature measurements can be taken by attaching a thermometer or

a thermocouple to the parts basket or hoist hook and lowering it into the machine so that it is in the center of the air blanket above the vapor zone.

- b.
 - i. The Permittee shall ensure and obtain certification from the manufacturer that the freeboard height is greater than or equal to the width of the interior freeboard. Freeboard ratio shall be determined by dividing the height of freeboard to the smallest interior freeboard width. If the freeboard ratio is less than 1.0 , the Permittee shall immediately correct the freeboard ratio.
 - ii. Record of Freeboard Ratio and any modification to the Freeboard Ratio.
- 10a. The Permittee shall comply with the following monitoring procedures requirements, pursuant to 40 CFR Part 63.466.
 - i. The Permittee shall conduct monitoring and record the results on a weekly basis for Free Board Refrigeration Device, pursuant to 40 CFR Part 63.466(a)(1). A thermometer or thermo couple shall be used to measure the temperature at the center of the air blanket during the idling mode.
 - b. The Permittee shall comply with the following monitoring procedures, pursuant to 40 CFR Part 63.466(c).
 - i. The Permittee shall determine the hoist speed by measuring the time it takes for the hoist to travel a measured distance. The speed is equal to the distance in meters divided by the time in minutes (meters per minute).
 - ii. The monitoring shall be conducted monthly. If after the first year no exceedances of the hoist speed are measured the Permittee may begin monitoring the hoist speed quarterly.
 - iii. If an exceedance of the hoist speed occurs during quarterly monitoring the monitoring frequency returns to monthly until another year of compliance without an exceedance is demonstrated.
 - iv. If the Permittee can demonstrate to the Illinois EPA's satisfaction in the initial compliance report that the hoist cannot exceed a speed of 11 feet per minute, the required monitoring frequency is quarterly, including during the first year of compliance.
- 11a. The Permittee shall retain the following records on paper or computer disk for the lifetime of the solvent cleaning machine,

pursuant to 40 CFR Part 63.467(a):

- i. An owners manual or a written maintenance and operating procedure for each machine and each piece of control equipment.

- ii. The installation date of each machine. If installation date isn't available, a letter certifying that machine was installed prior to or on or after November 29, 1993, to determine compliance option for existing or new source.
 - iii. Records of the halogenated HAP solvent content of each solvent used in each solvent cleaning machine.
- b. The Permittee shall retain the following records in electronic or written form for a period of 5 years, pursuant to 40 CFR Part 63.467(b).
- i. The results of control device monitoring required under 40 CFR Part 63.466.
 - ii. The Permittee shall keep the weekly freeboard air temperature measurements.
 - iii. Record of freeboard ratio and any modification to the freeboard ratio.
 - iv. Estimates of annual solvent consumption for each solvent cleaning machine.
12. The Permittee shall comply with the following requirements for open top vapor degreasers pursuant to 35 Ill Adm. Code 218.183:
- a. Operating requirements: No person shall operate an open top vapor degreaser unless:
 - i. The cover of the degreaser is closed when workloads are not being processed through the degreaser;
 - ii. Solvent carry out emissions are minimized by:
 - A. Racking parts to allow complete drainage;
 - B. Moving parts in and out of the degreaser at less than 3.3 m/min (11 ft/min);
 - C. Holding the parts in the vapor zone until condensation ceases;
 - D. Tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and
 - E. Allowing parts to dry within the degreaser until visually dry;

- iii. Porous or absorbent materials, such as cloth, leather, wood or rope, are not degreased;
- iv. Less than half of the degreaser's open top area is occupied with a workload;

- v. The degreaser is not loaded to the point where the vapor level would drop more than 10 cm (4 in) when the workload is removed from the vapor zone;
 - vi. Spraying is done below the vapor level only;
 - vii. Solvent leaks are repaired immediately;
 - viii. Waste solvent is stored in covered containers only and not disposed of in such a manner that more than 20% of the waste solvent (by weight) is allowed to evaporate into the atmosphere;
 - ix. Water is not visually detectable in solvent exiting from the water separator; and
 - x. Exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of degreaser open area is not used, unless necessary to meet the requirements of the Occupational Safety and Health Act (29 U.S.C. Section 651 et seq.).
- b. Equipment requirements: No person shall operate an open top vapor degreaser unless:
- i. The degreaser is equipped with a cover designed to open and close easily without disturbing the vapor zone;
 - ii. The degreaser is equipped with the following switches:
 - A. One which shuts off the sump heat if the amount of condenser coolant is not sufficient to maintain the designed vapor level; and
 - B. One which shuts off the spray pump if the vapor level drops more than 10 cm (4 in) below the bottom condenser coil; and
 - C. One which shuts off the sump heat source when the vapor level exceeds the design level;
 - iii. A permanent conspicuous label summarizing the operating procedure is affixed to the degreaser;
 - iv. The degreaser is equipped with one of the following devices:
 - A. A freeboard height of 3/4 of the inside width of the degreaser tank or 91 cm (36 in), whichever is

less; and if the degreaser opening is greater than 1 square meter (10.8 square feet), a powered or mechanically assisted cover; or

- B. Any other equipment or system of equivalent emission control as approved by the Agency and further processed consistent with Section 218.108 of this Part. Such equipment or system may include a refrigerated chiller, an enclosed design or a carbon adsorption system.
- 13a. The Permittee shall maintain monthly records of the following items for the degreasers:
- i. Solvent usage (U) in gallons/month and gallons/year.
 - ii. Virgin solvent added to the degreasers (V) in gallons/month and gallons/year, as determined by daily addition log sheets.
 - iii. Waste solvent removed from the degreasers (W) in gallons/month and gallons/year, as determined by monthly manifests.
 - iv. Analysis sheet(s) showing test results and any calculations used to determine percent concentration of solvent in waste (P) for each month.
 - v. Emissions of VOM and HAPs in tons/month.
 - vi. Emissions of VOM and HAPs in tons/yr (i.e., running 12 month total).
- b. The Permittee shall maintain records of the following items for the adhesive application operation:
- i. A list giving the name and identification number of each adhesive as applied.
 - ii. VOM and HAP content in weight percent for adhesive used.
 - iii. Density in pounds per gallon for each adhesive used.
 - iv. Adhesive usage in tons/month and tons/year.
14. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.
15. If there is an exceedance of the requirements of this permit as

determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.

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16. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Eisenhower Tower
1701 South First Avenue
Maywood, Illinois 60153

17. The Permittee shall submit the following additional information with the Annual Emissions Report, due May 1st of each year: solvent usage, VOM emissions and HAP emissions from the prior calendar year. If there have been no exceedance of a requirement of this permit during the prior calendar year, the annual emission report shall contain a statement to that effect.

It should be noted that the grinders, laser marking machine, and sand blasters are exempt from state permit requirements, pursuant to 35 Ill. Adm. Code 201.146 (aa).

If you have any questions on this, please call Tara T. Nguyen-Ede at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:TNE:psj

cc: IEPA, FOS Region 1
IEPA, Compliance Unit
Lotus Notes

Attachment A - Emissions Summary

This attachment provides a summary of the maximum emission of the Dental Instrument Manufacturing Facility operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Agency used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels, e.g., at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that material is handled, and control measures are more effective than required in this permit.

1. Total combined emissions and solvent usage of the degreasers shall not exceed the following limits:

<u>Solvent¹ Usage</u>		<u>VOM² Emissions</u>		<u>HAP³ Emissions</u>	
<u>(gal/month)</u>	<u>(gal/yr)</u>	<u>(lbs/month)</u>	<u>(tons/yr)</u>	<u>(lbs/month)</u>	<u>(tons/yr)</u>
129.7	1,557	1,582	9.5	1,582	9.5

¹ Trichloroethylene is used as the solvent for each degreaser.

² VOM (a.k.a., VOC) pursuant to 35 Ill. Adm. Code Part 211. Trichloroethylene is a VOM.

³ HAPs as identified in Section 112(b) of the Clean Air Act as amended in 1990. Trichloroethylene is listed as a HAP.

These limits define the potential emissions of VOM and HAPs and are based on the maximum usage and emissions. Emission limits are based on the solvent usage and a density of 12.2 lbs/gal for trichloroethylene. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months

- 2a. This permit is issued based on negligible emissions of VOM from the adhesive application operation, heat treat/adhesive curing ovens and heat treat ovens. For this purpose emissions from each emission source, shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/yr.
 - b. This permit is issued based on negligible emissions of particulate matter from the heat treat/adhesive curing ovens and heat treat ovens. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.
 - c. This permit is issued based on negligible emissions of nitrogen oxide from the acid tank. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.
 - d. This permit is issued based on negligible emissions of sulfuric and phosphoric acid mist from the electropolishing tanks. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.
3. The emissions of Hazardous Air Pollutants (HAP) as listed in Section

112(b) of the Clean Air Act shall be less than 10 tons/year of any single HAP and 25 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of all HAPs from this source not triggering the requirements to obtain a Clean Air Act Permit Program Permit (CAAPP), and Section 112(G) of the Clean Air Act.

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