

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- SPECIAL

PERMITTEE

Metals Technology Corporation
Attn: Thomas J. Bell
120 North Schmale Road
Carol Stream, Illinois 60188

Application No.: 99020049 I.D. No.: 043020ACD
Applicant's Designation: DEGREASER Date Received: December 20, 1999
Subject: Degreaser
Date Issued: September 6, 2001 Expiration Date: September 6, 2006
Location: 120 North Schmale Road, Carol Stream

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of one degreaser, heat treating furnaces and ancillary equipment as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

Findings

1. Metals Technology Corporation (MTC) is seeking an operating permit for its metal heat treating facility in Carol Stream. The facility was constructed in 1996, when it moved from nearby Addison.
2. The area in which the facility is located is designated nonattainment for ozone.
3. The principle emission unit at the facility is an open top vapor degreaser, which is used to clean metal parts prior to further processing at the plant. Emissions of volatile organic material (VOM) result from solvent evaporation. Reduced room draft, freeboard refrigeration, and high free board ratio are used to minimize emissions of VOM.
4. This permit addresses the facility as a major source subject to 35 IAC, Part 203 (New Source Review) because the facility was a major new source of VOM, with actual VOM emissions in excess of 25 tons/year, when it initially operated. As a major source of VOM, MTC will also have to obtain a Clean Air Act Permit Program (CAAPP) permit for the facility, which when it is issued, will supersede this state operating permit.
5. The permit requires the use of the Lowest Achievable Emission Rate (LAER), addressing the facilities obligation to use LAER pursuant to 35 IAC, Part 203 (Major Stationary Sources Construction and Modification (MSSCAM)), as the facility was a major source when it began operation. MTC has demonstrated to the Illinois EPA that its VOM emissions are now

controlled with LAER. Specific provisions defining LAER are set for the degreaser. Specific provisions defining LAER for equipment other than the degreaser, are not set as LAER is inherent in the operation of these units due to their nature, i.e., natural gas fired heat treating furnaces and space heaters and insignificant emission units as specified by 35 IAC 201.210(b).

6. The actual VOM emissions of this facility are now less than 25 tons/year. This permit limits the facility's VOM emissions to less than 25 tons/year so that emission offsets under 35 IAC 203 are not being required for operation under this permit. To obtain a permit that allows the facility to emit 25 tons or more of VOM each year, MTC would have to obtain an appropriate permit from the Illinois EPA showing that the required emission offsets under 35 IAC 203.302 have been satisfied for future operation.

In this respect, this permit is issued based on the source not being required to provide emissions offsets for its future operation, as addressed by this permit as this permit limits the source so that its future VOM emissions should be less than 25 tons/year. This permit does not address the requirement to provide emission offsets under 35 IAC 203.302 for operation of the source prior to issuance of this permit. The requirement for emissions offsets for prior operation of the source and the means by which such obligation is satisfied will be determined as part of a separate legal proceeding.

7. The degreaser is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Halogenated Solvent Cleaning, 40 CFR 63, Subpart T, because the organic solvent used in the degreaser is a halogenated solvent. MTC will also have to obtain a Clean Air Act Permit Program (CAAPP) permit as a major source for emissions of hazardous air pollutants (HAP), permitted to emit more than 10 tons/year of an individual HAP.
8. After reviewing all materials submitted by MTC, the Illinois EPA has determined that the permit application shows compliance with applicable air pollution control requirements. The permit requires use of the Lowest Achievable Emission Rate (LAER), which addresses the source's failure to use LAER pursuant to 35 IAC, Part 203 (New Source Review) when the facility was constructed.
9. A copy of the application and the Illinois EPA's review of the application and a draft of this permit were forwarded to a location in the vicinity of the facility, and the public was given notice and opportunity to examine this material, to submit comments, and to request a public hearing on this matter.

Conditions

1.0 Plant-Wide Conditions

- a. i. This permit is issued based on negligible emissions of volatile organic material (VOM) from the storage tanks.

For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.

- ii. Emissions of VOM from the degreaser shall not exceed 18.44 tons/year (See also Condition 2.1.6).
 - iii. Emissions of VOM from the heat treating furnaces (three austemper furnaces, four endothermic gas generators, one oil quench furnace, and two tempering furnaces) shall not exceed 0.1 tons/month and 0.52 tons/year. These limits are based on the maximum firing rates and standard USEPA emission factors from its Compilation of Air Pollutant Emission Factors, AP-42. Compliance with the annual limit shall be determined from a running total of 12 months of data.
- b. The Permittee must comply with Conditions 2.1.3 and 2.1.5, as they represent the Lowest Achievable Emissions Rate (LAER), pursuant to 35 IAC 203.301, for emissions of VOM from this facility. As these Conditions represent a determination of LAER pursuant to 35 IAC 203.301, these requirements remain in effect notwithstanding the expiration date specified for this permit pursuant to 35 IAC 203.601 until the Illinois EPA deletes or revises these requirements in accordance with applicable procedures of 35 IAC Part 203 or VOM solvent is no longer used in the degreaser.

Note: Certain conditions may continue in effect if the new solvent is still a HAP, even though it is not a VOM.

2.0 Unit Specific Conditions

- 2.1 Unit: Degreaser (DG1)
Control: Equipment Design and Work Practices

2.1.1 Description

The Open Top Vapor degreaser is used to clean metal parts prior to further processing at the source. Trichloroethylene, which is classified as both Volatile Organic Material (VOM) and Hazardous Air Pollutant (HAP), is currently used as the cleaning solvent. Emissions of VOM and HAP are the result of solvent evaporation. The control practices consist of reduced room draft, freeboard refrigeration, and a minimum free board ratio of 1.0.

For purposes of state rules, the solvent degreaser is referred to as a degreaser, whereas federal rules refer to it as a solvent cleaning machine.

2.1.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
DG1	Open Top Vapor Degreaser	Equipment Design and Work Practices

2.1.3 Applicable Regulations

- a. The affected "degreaser" or "cleaning machine" for the purpose of these unit-specific conditions, is the degreaser identified in Condition 2.1.2.
- b. The Permittee shall ensure that the cleaning machine conforms to the following requirements [40 CFR 63.463(a)]:
 - i. The cleaning machine shall be designed and operated to meet the following control equipment or technique requirements:
 - A. An idling and downtime mode cover, as described in 40 CFR 63.463(d)(1)(i), that may be readily opened or closed, that completely covers the cleaning machine openings when in place, and is free of cracks, holes, and other defects.
 - B. A reduced room draft as described in 40 CFR 63.463(e)(2)(ii) (See also Condition 2.1.3(d)(ii)(B)).
 - ii. The cleaning machine shall have an automated parts handling system capable of moving parts or parts baskets at a speed of 3.4 meters per minute (11 feet per minute) or less from the initial loading of parts through removal of cleaned parts.
 - iii. The cleaning machine shall be equipped with a device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.
 - iv. The cleaning machine shall be equipped with a vapor level control device that shuts off sump heat if the vapor level in the cleaning machine rises above the height of the primary condenser.
 - v. The cleaning machine shall have a primary condenser.

- c. The Permittee shall comply with the following control combination pursuant to 40 CFR 63.463(b)(2)(i), as the solvent/air interface of the cleaning machine is greater than 1.21 square meters (13 square feet):

Employ control combination (option 6) listed in table 2 of the 40 CFR 63.463.

Option 6: Freeboard refrigeration device, reduced room draft, freeboard ratio of 1.0

- d. The Permittee shall comply with the following requirements [40 CFR 63.463(e)].
 - i. Conduct monitoring of each control device used to comply with the conditions of this permit (See also 40 CFR 63.463) as provided in 40 CFR 63.466.
 - ii. Determine during each monitoring period whether each control device used to comply with these standards meets the following requirements.
 - A. The Permittee shall comply with the following requirements for the freeboard refrigeration device [40 CFR 63.463(e)(2)(i)]:

Ensure that the chilled air blanket temperature (in degrees F or degrees C), measured at the center of the air blanket, is no greater than 30 percent of the solvent's boiling point.
 - B. The Permittee shall comply with the following requirements for the reduced room draft [40 CFR 63.463(e)(2)(ii)]:
 - 1. Ensure that the flow or movement of air across the top of the freeboard area of the solvent cleaning machine or within the solvent cleaning machine enclosure does not exceed 15.2 meters per minute (50 feet per minute) at any time as measured using the procedures in 40 CFR 63.466(d).
 - 2. Establish and maintain the operating conditions under which the wind speed was demonstrated to

be 15.2 meters per minute (50 feet per minute) or less as described in 40 CFR 63.466(d).

- e. If any of the requirements of Condition 2.1.3(d)(ii) (See also 40 CFR 63.463(e)(2)) are not met, the Permittee shall determine whether an exceedance has occurred using the following criteria [40 CFR 63.463(e)(3)]:
 - i. An exceedance has occurred if the requirements of Condition 2.1.3(d)(ii)(B)(2) (See also 40 CFR 63.463(e)(2)(ii)(B)) have not been met.
 - ii. An exceedance has occurred if the requirements of Condition 2.1.3(d)(ii)(A) (See also 40 CFR 63.463(e)(2)(i)) have not been met and are not corrected within 15 days of detection. Adjustments or repairs shall be made to the solvent cleaning system or control device to reestablish required levels. The parameter must be remeasured immediately upon adjustment or repair and demonstrated to be within required limits.
 - iii. The Permittee shall report all exceedances and all corrections and adjustments made to avoid an exceedance as specified in 40 CFR 63.468(h).
- f. The Permittee shall not operate the degreaser unless [35 IAC 218.183(b)]:
 - 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; and
- iv. The degreaser is equipped with one of the following devices:
 - A. A freeboard height of 1.0 of the inside width of the degreaser tank; and
 - B. A powered or mechanically assisted cover.

2.1.4 Non-Applicability of Regulations of Concern

This permit is issued based on the degreasers not being subject to 35 IAC 218.301 because it uses solvent i.e., trichloroethylene, which for purposes of this rule is considered as a photochemically non-reactive material.

2.1.5 Operational and Production Limits and Work Practices

- a. The Permittee shall meet all of the following required work and operational practices specified below [40 CFR 463 (d)(1) through (d)(12)].
 - i. Control air disturbances across the cleaning machine opening(s) by incorporating the control equipment and techniques as follows [40 CFR 63.463(d)(1)(i) and (d)(1)(ii)]:
 - A. Cover(s) to each solvent cleaning machine shall be in place during the idling mode, and during the downtime mode unless either the solvent has been removed from the machine or maintenance or monitoring is being performed that requires the cover(s) to not be in place
 - and
 - B. A reduced room draft as described in 40 CFR 63.463(e)(2)(ii).
- ii. The parts baskets or the parts being cleaned in the cleaning machine shall not occupy more than 50 percent of the solvent/air interface area unless the parts baskets or parts are introduced at a speed of 0.9 meters per minute (3 feet per minute) or less.
- iii. Any spraying operations shall be done within the vapor zone or within a section of the cleaning machine that is not directly exposed

to the ambient air (i.e., a baffled or enclosed area of the solvent machine).

- iv. Parts shall be oriented so that the solvent drains from them freely. Parts having cavities or blind holes shall be tipped or rotated before being removed from the cleaning machine unless an equally effective approach has been approved by the USEPA.
- v. Parts baskets or parts shall not be removed from the cleaning machine until dripping has stopped.
- vi. During startup of the cleaning machine, the primary condenser shall be turned on before the sump heater.
- vii. During shutdown of the cleaning machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off.
- viii. When solvent is added or drained from the cleaning machine, the solvent shall be transferred using threaded or other leakproof couplings and the end of the pipe in the solvent sump shall be located beneath the liquid solvent surface.
- ix. The cleaning machine and associated controls shall be maintained as recommended by the manufacturers of the equipment or using alternative maintenance practices that have been demonstrated to the USEPA's satisfaction to achieve the same or better results as those recommended by the manufacturer.
- x. Each operator of a solvent cleaning machine shall complete and pass the applicable sections of the test of solvent cleaning operating procedures in Appendix B of 40 CFR 63, Subpart T if requested during an inspection by the USEPA or the Illinois EPA.
- xi. Waste solvent, still bottoms, and sump bottoms shall be collected and stored in closed containers. The closed containers may contain a device that would allow pressure relief, but would not allow liquid solvent to drain from the container.

- xii. Sponges, fabric, wood, and paper products shall not be cleaned.
- b. Operating Requirements: The Permittee shall not operate the degreaser unless [35 IAC 218.183(a)]:
 - i. The cover of the degreaser is closed when workloads are not being processed through the degreaser;
 - ii. Solvent carryout 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.).

2.1.6 Emission Limitations

The degreaser is subject to the following:

- a. Emissions and operation of the degreaser shall not exceed the following limits:

Solvent usage		VOM Emission	
(Lb/Mo)	(Ton/yr)	(Lb/Mo)	(Ton/yr)
7,400	18.44	7,400	18.44

These limits are based on maximum solvent usage for the degreaser as described in the application.

- b. Compliance with these limits shall be determined by material balance in accordance with Condition 2.1.12. 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.

2.1.7 Testing Requirements

The Permittee shall comply with the test methods specified in 40 CFR 63.465.

2.1.8 Monitoring Requirements

- a. The Permittee shall conduct monitoring and record the results as specified below [40 CFR 63.466(d)]:
 - i. If the reduced room draft is maintained by controlling room parameters (i.e., redirecting fans, closing doors and windows, etc.), the owner or operator shall conduct an initial monitoring test of the windspeed and of room parameters, quarterly monitoring of windspeed, and weekly monitoring of room parameters specified as follows [40 CFR 63.466(d)(1)(i) and (d)(1)(ii)]
 - A. Measure the windspeed within 6 inches above the top of the freeboard area of the solvent cleaning machine using the procedure specified below:
 - 1. Determine the direction of the wind current by slowly rotating a

velometer or similar device until the maximum speed is located.

2. Orient a velometer in the direction of the wind current at each of the four corners of the machine.
3. Record the reading for each corner.
4. Average the values obtained at each corner and record the average wind speed.

B. Monitor on a weekly basis the room parameters established during the initial compliance test that are used to achieve the reduced room draft.

ii. If an enclosure (full or partial) is used to achieve a reduced room draft, the Permittee shall conduct an initial monitoring test and, thereafter, monthly monitoring tests of the windspeed within the enclosure using the procedure specified in paragraphs 40 CFR 63.466(d)(2)(i) and (d)(2)(ii) and a monthly visual inspection of the enclosure to determine if it is free of cracks, holes and other defects as follows [40 CFR 63.466(d)(2)]:

A. Determine the direction of the wind current in the enclosure by slowly rotating a velometer inside the entrance to the enclosure until the maximum speed is located.

B. Record the maximum wind speed.

c. The Permittee shall monitor the hoist speed as described below [40 CFR 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 owner or operator 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 an owner or operator can demonstrate to the Administrator's satisfaction in the initial compliance report that the hoist cannot exceed a speed of 3.4 meters per minute (11 feet per minute), the required monitoring frequency is quarterly, including during the first year of compliance.
- d. The Permittee shall conduct monitoring and record the results on a weekly basis for the freeboard refrigeration device as follows:

The Permittee shall use a thermometer or thermocouple to measure the temperature at the center of the air blanket during the idling mode.

2.1.9 Recordkeeping Requirements

- a. The Permittee shall maintain records in written or electronic form as specified below for the lifetime of the cleaning machine [40 CFR 63.467 (a)]:
 - i. Owner's manuals, or if not available, written maintenance and operating procedures, for the cleaning machine and control equipment.
 - ii. The date of installation for the cleaning machine and all of its control devices.
 - iii. Records of the halogenated HAP solvent content for each solvent used in a solvent cleaning machine.
- b. The Permittee shall maintain records as specified below either in electronic or written form for a period of 5 years [40 CFR 63.467 (b)]:
 - i. The results of control device monitoring required under Condition 2.1.8 (See also 40 CFR 63.466).
 - ii. Information on the actions taken to comply with Condition 2.1.3(d) (See also 40 CFR 63.463(e)). This information shall include records of written or verbal orders for replacement parts, a description of the repairs made, and additional monitoring

conducted to demonstrate that monitoring parameters have returned to acceptable levels.

- iii. Annual solvent consumption for the cleaning machine.
- c. The Permittee shall maintain the following records upon issuance of this permit:
- i. Monthly and annual solvent usage in gallons.
 - ii. Type and density of solvent used.
 - iii. Amount of solvent reclaimed for reuse or sent offsite for disposal, including percent concentration of solvent in waste.

2.1.10 Reporting Requirements

- a. The Permittee shall submit an annual report by February 1 of the year following the one for which the reporting is being made. This report shall include the requirements specified below [40 CFR 63.468(f)]:
- i. A signed statement from the facility owner or his designee stating that, "All operators of solvent cleaning machines have received training on the proper operation of solvent cleaning machines and their control devices sufficient to pass the test required in 40 CFR 63.463(d)(10)."
 - ii. An estimate of solvent consumption for the cleaning machine during the reporting period.
- b. The Permittee shall submit a semiannual exceedance report to the Illinois EPA except when, the Illinois EPA determines on a case-by-case basis that more frequent reporting is necessary to accurately assess the compliance status of the source or, an exceedance occurs. Once an exceedance has occurred the Permittee shall follow a quarterly reporting format until a request to reduce reporting frequency under 40 CFR 63.468 is approved. Exceedance reports shall be delivered or postmarked by the 30th day following the end of each calendar half or quarter, as appropriate. The exceedance report shall include the following [40 CFR 63.468(h)]:
- i. Records of written or verbal orders for replacement parts, a description of the repairs made, and additional monitoring

conducted to demonstrate that monitored parameters have returned to accepted levels.

- ii. If an exceedance has occurred, the reason for the exceedance and a description of the actions taken.
 - iii. If no exceedances of a parameter have occurred, or a piece of equipment has not been inoperative, out of control, repaired, or adjusted, such information shall be stated in the report.
- c. Two 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 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
9511 West Harrison
Des Plaines, Illinois 60016

2.1.11 Operational Flexibility/Anticipated Operating Scenarios

None

2.1.12 Compliance Procedures

- a. For purposes 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 purpose 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 testing requirements in Condition 2.1.7.

- b. Compliance with the monthly organic material emission limits shall be calculated using the solvent density as specified in the material Safety Data Sheet, and the solvent usage (U) per month, as follows:

$$\text{Emission} = \text{Solvent usage (U)} \times \text{Solvent density}$$

(Lb/month) (gallon/month) x (Lb/gallon)

If you have any questions concerning this permit, please call Jason Schnepf at 217/782-2113.

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

DES:JMS:psj

cc: Region 1