

ILLINOIS POLLUTION CONTROL BOARD
May 16, 1996

IN THE MATTER OF:)
) AS 94-4
JOINT PETITION OF CHASE PRODUCTS) (Adjusted Standard - Air)
COMPANY AND THE ILLINOIS)
ENVIRONMENTAL PROTECTION AGENCY FOR)
AN ADJUSTED STANDARD FROM 35 ILL. ADM.)
CODE 218.SUBPART DD)
)

TRACEY L. MIHELIC, GARDNER, CARTON & DOUGLAS, APPEARED ON BEHALF OF CHASE PRODUCTS COMPANY;

SHEILA G. KOLBE, ASSISTANT COUNSEL, APPEARED ON BEHALF OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY.

OPINION AND ORDER OF THE BOARD (by M. McFawn):

This matter is before the Board on a petition for adjusted standard filed by Chase Products Company (Chase) on February 14, 1994, as amended on January 3, 1995. The Illinois Environmental Protection Agency (Agency) moved for co-petitioner status, which was granted on February 16, 1995. The petitioners request that Chase be given an adjusted standard from the air emission control requirements of 35 Ill. Adm. Code 218.Subpart DD for its manufacturing facility located in Broadview, Cook County, Illinois. The proposed adjusted standard would allow Chase to fill up to 2 million aerosol cans per year on its Line 2 aerosol can filling line using the non-enhanced under-the cup filling method without reclamation.

The Board's responsibility in this matter arises from the Environmental Protection Act (Act) (415 ILCS 5/1 et seq.). The Board is charged therein to "determine, define and implement the environmental control standards applicable in the State of Illinois" (Section 5(b) of the Act) and to "grant . . . an adjusted standard for persons who can justify such an adjustment" (Section 28.1(a) of the Act). Thus, the Board is charged with the authority to grant individual adjusted standards which are different from the Board's generally applicable regulations. Although usually granted as permanent relief, the adjusted standard is not adopted as a rule under the Administrative Code. Rather, the opinion and order granting, and oftentimes conditioning, the relief requested serves the regulatory function, establishing the enforceable standard applicable to a petitioner's facility.

Based upon the record before us and upon review of the factors involved in the consideration of adjusted standards, the Board finds that petitioners, most particularly Chase, have demonstrated that the adjusted standard sought is warranted. The adjusted standard accordingly is granted, subject to the conditions outlined in the order.

ADJUSTED STANDARD PROCEDURE

Section 28.1 of the Act provides that a petitioner may request, and the Board may adopt, an environmental standard that is: (a) applicable solely to the petitioner, and (b) different from the standard that would otherwise apply to petitioner pursuant to a rule of general applicability. Such a standard is called an adjusted standard. The general procedures that govern an adjusted standard proceeding are found at Section 28.1 of the Act and within the Board's procedural rules at 35 Ill. Adm. Code Part 106.

Where, as here, the regulation of general applicability does not specify a level of justification required for a petitioner to qualify for an adjusted standard, the Act at Section 28.1(c) specifies four demonstrations that must be made by a successful petitioner. They are:

- (1) Factors relating to that petitioner are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation applicable to that petitioner;
- (2) The existence of those factors justifies an adjusted standard;
- (3) The requested standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and
- (4) The adjusted standard is consistent with any applicable federal law.

(415 ILCS 5/28.1(c).)

PROCEDURAL HISTORY

Chase originally filed a petition for adjusted standard on February 14, 1994. On March 3, 1994, the Board issued an order finding this petition deficient, and directing Chase to submit an amended petition by April 15, 1994. On April 1, 1994, Chase and the Agency moved for an extension of time to file an amended petition, *i.e.*, until May 27, 1994. That motion was granted by Board order of April 21, 1994. After several more joint motions requesting additional time to file, all of which were granted, Chase filed its amended petition on January 3, 1995; this was accepted by the Board on January 11, 1995.

During the time intervening between the initial filing and the amended petition, Chase and the Agency negotiated regarding the relief requested by Chase. Prior to the amended petition being filed, the Agency reviewed a draft of the same and asked that Chase prepare a Technical Support Document (TSD) which would provide additional support for the adjusted standard sought by Chase. The fifth joint extension of time filed October 27, 1994 and granted by the Board on November 3, 1994 was to afford Chase time to prepare such TSD. The TSD was filed along with the January 3, 1995 amended petition. The Agency reviewed the amended petition and had one significant comment regarding the language of the proposed adjusted standard. The Agency requested that Chase maintain records, on a daily basis, establishing the total number of cans filled by the through-the-valve method and by the non-enhanced under-the-cup method, and make these records available to the Agency upon request. Chase filed a second amended petition on January 17, 1995, which modified the proposed adjusted standard language and incorporated the Agency's recommended changes.

At the time the amended petition was filed, Chase and the Agency still had some unresolved underlying issues. They successfully resolved those issues with the second amended petition, and on January 27, 1995, filed a joint motion for co-petitioner status. The Board granted that motion and accepted the amended proposed language by order dated February 16, 1995. On June 26, 1995 a hearing was held in this matter in Chicago, Illinois before hearing officer June Edvenson. This hearing was continued on the record until August 2, 1995, when hearing resumed in Chicago, Illinois. Judy Albazi, Ludi Hernandez, and Don Virzi testified on behalf of Chase, and Gary Beckstead and Bob Smet testified on behalf of the Agency. Kevin Desharnais, attorney assistant to Board Member McFawn, and environmental engineer Anand Rao were also present. No members of the public attended. On August 2, 1995, Chase and the Agency filed a joint motion to modify the proposed adjusted standard language adding, in pertinent part, specifications for the filling of aerosol cans. That motion is hereby granted.

RULE OF GENERAL APPLICABILITY

Chase seeks an adjusted standard from the reasonably available control technology (RACT) regulations recently adopted by the Board at 35 Ill. Adm. Code 218, Subpart DD, as they apply to emissions of volatile organic material (VOM) from Chase's Broadview, Illinois facility. Specifically, Chase requests an adjusted standard from 35 Ill. Adm. Code 218.686, which requires that an aerosol can filling operation achieve an overall reduction in uncontrolled VOM emissions of 81%, or, as an alternative, requires that the source fill at least 90%

of the cans that are capable of being filled through-the-valve (TTV) with the TTV method. The remaining cans that are capable of being filled TTV must be filled with the enhanced under-the-cup method (UTC) or non-enhanced UTC with reclamation method. If the cans are not capable of being filled by the TTV method, the source is required to fill them by the enhanced UTC method or non-enhanced UTC with reclamation method. (35 Ill. Adm. Code 218.686(a).)

BACKGROUND

Chase owns and operates an approximately 27,000 square foot plant located on 5.5 acres in Broadview, Illinois. At that facility, Chase formulates and packages over 900 different aerosol consumer products. The various items produced include spray paints, decorative "snow," household cleaners and personal care products. These products are processed according to customer demand on a contract basis that is characterized by frequent product changes and small production runs. The properties of the products determine the method by which Chase must fill the cans.

Chase's process begins with the formulating of materials. Chase formulates (blends) the materials in either the Paint Shop or the compounding areas. The product is then pumped to one of its five aerosol filling lines where it is pumped into the can and pressurized with the appropriate propellant using the TTV or the UTC. The cans are then tested, inspected, labeled and prepared for shipping.

In filling the cans, nozzles are used to inject the paint concentrate or other products into the cans. It is the can filling operation which is the subject of Chase's adjusted standard petition. Two different techniques are currently used by Chase to pressurize the aerosol cans. These methods are known as the TTV method and the UTC method. The UTC method charges the propellant under the aerosol valve cap (container top) and mechanically seals the cup after the fill cycle. The TTV method charges the propellant through the valve that controls dispensing of the product. The valve is mechanically sealed prior to TTV operation. (Pet. at 4.) Chase currently operates five lines, four of which pressurize cans using TTV and one of which, Line No. 2, pressurizes using UTC.

Chase is in the process of modifying its Line No. 2 so as to enable cans to be filled on that line using the TTV process; however, certain products will require Chase to retain the present capability of UTC filling for a small portion of its production. (TSD at 1-1.) The requested adjusted standard pertains solely to Line No. 2, since it is the only line which still accommodates the UTC method.

As a "contract manufacturing plant," Chase's production is determined by customer demand. Chase has a product base of over 900 items, and will run approximately four thousand different production runs over a year to fill customer orders. Various product lines have a degree of seasonality associated with them, such as production of decorative "snow" spray. Accordingly, Chase must demonstrate flexibility to meet changing market demands. Chase's operations are different than other typical aerosol can filling operations in Illinois in that it has over four thousand different production runs per year, requiring thousands of production line changeovers throughout the year.

VOM EMISSION SOURCES

The emission sources present at the facility are divided into two categories: those associated with the blending/mixing of products and sources associated with can pressurization. The mixing of products results in volatile organic material (VOM) emissions as materials volatilize and vapor is displaced during transfer operations. Bulk storage tanks emit VOM as a result of "breathing" and "working" losses that occur with the transfer of materials and fluctuations in atmospheric conditions. Emission sources that are associated with the can pressurization system include the propellant booster pumps and piping components whose emissions are considered to be "fugitive" losses. (TSD at 2-1.)

The product mixing emission sources are further divided into sources used in personal care production and those involved with the production of paint concentrate. The personal care compounding operations require

the use of tanks (with mixers) for blending ingredients to form homogenous mixtures. Vapor displacement that occurs during the operation and cleaning of the tanks causes VOM emissions. Paint concentrate production requires the use of mixers, tanks, mills and screens. Each of these components represents a potential emission source. (TSD at 2-1.)

In addition, VOM emissions occur as the various products are introduced into the cans prior to pressurization. Both of the can pressurization techniques (TTV and UTC) result in the loss of propellant, a VOM. Estimates of the amount of propellant released from the pressurization, based on emission test data, are 0.383 grams and 0.483 grams of propellant lost during the TTV and UTC pressurization processes respectively. (TSD at 2-1.)

COMPLIANCE ALTERNATIVES

Chase states that it has successfully investigated and implemented alternative methods of filling its aerosol cans in order to minimize VOM emissions. With the conversion of Line 2 to allow use of the TTV process, Chase will be able to fill almost all of its cans through-the-valve. However, Chase anticipates that approximately 10% of the cans filled on its Line 2 will still require filling by the non-enhanced UTC method. Chase estimates that a maximum of 2 million out of the approximately 34 million cans it fills per year will require filling by the UTC method. (Pet. at 5-6.)

To achieve compliance with the RACT rules regarding VOM emissions and can filling operations, Chase investigated the following control strategies for Line 2 of its filling operation: (1) enhanced UTC; (2) UTC with reclamation; and (3) add-on controls. Each alternative compliance method is discussed below.

Enhanced UTC. The enhanced UTC method reduces VOM emissions from can filling operations by “sweeping” the VOM that would otherwise be lost into the can at the conclusion of the pressurization step. (TSD at 4-1.) Typically, a non-condensable gas such as nitrogen or air is used to purge VOM at the completion of the pressurization process. These non-condensable gasses can affect the pressure of the material within the can and, as a result, tend to degrade the product quality. The gasses (nitrogen or air) are collected by the reclamation systems and will not form a liquid at the temperatures and pressures normally employed for the types of products that Chase packages. The difference in volume occupied by a liquid (or condensed gas) is significant. The co-petitioners assert that this physical characteristic can prevent the addition of the proper amount of propellant and consequently alter the parameters that control product discharge from the can. As a result, for example, it may not be possible for the consumer to remove the product from the can due to a lack of propellant. (*Id.*)

In addition, certain products may react with the non-condensable gasses introduced by the enhanced UTC system. The non-condensable gasses may cause both chemical alterations and changes in pressure, degrading product quality. For these reasons, co-petitioners assert that the enhanced UTC methodology is technically inappropriate for Chase’s operations. (*Id.*)

UTC with Reclamation. UTC with reclamation reduces emissions of VOM from the pressurization operation by recovering the propellant that would otherwise be lost. The reclamation system recovers VOM that remains above the cup which is not injected into the can during pressurization. The resultant waste stream typically contains a mixture of propellant (VOM), product, and air.

The UTC with reclamation process can cause product contamination by introducing ingredients from one product into a second through the reclamation system. (TSD at 4-1.) Because contamination prevents reuse of the recovered gas, co-petitioners agree that use of the UTC with reclamation method is technically infeasible for Chase’s operations. (*Id.*) Additionally, contamination can result in damage to certain components of the packaging system. For example, aluminum chlorohydrate is incompatible with certain portions of the mechanisms; as a result, the mixing of ingredients that could occur with the use of reclamation systems has the potential to shorten the life of key components. (TSD at 4-1 and 4-2.) As an alternative to reuse of the

recovered propellant, the reclaimed stream could be captured and stored for eventual disposal by incineration or thermally treated on-site. The results of Chase's investigation of incineration are discussed immediately below.

Add-on Controls. Chase investigated the use of several types of add-on control equipment as alternative means of achieving compliance. The types of air pollution control equipment considered included thermal treatment (direct and catalytic incineration), carbon adsorption, and condensation.

Thermal oxidation is the control technique that is typically employed to reduce emissions of VOM. While other methods such as condensation and carbon adsorption can be considered, high temperature destruction of VOM is generally regarded as the most effective alternative. However, the captured air stream must be diluted to prevent the VOM from exceeding explosive concentrations. This necessitates the addition of a large quantity of auxiliary fuel (e.g., natural gas) to achieve the high temperatures required to oxidize the VOM. (TSD at 4-2.) Chase estimates that the installation of an incinerator capable of achieving an overall destruction efficiency of 90% would cost \$200,000 in capital expenditures. This would reduce emissions from 0.90 tons/year to 0.09 tons/year. The annualized cost of this technology would therefore be \$24,000/ton. (TSD at 5-2.)

Carbon adsorption can effectively remove a wide range of VOMs from the airstream. However, the wide range of VOMs adsorbed presents a waste disposal issue when the carbon becomes saturated. Additionally, the carbon will adsorb both volatile product and propellants, preventing recovery of any valuable compounds. The co-petitioners therefore assert that the use of carbon adsorption is not technically feasible.

Condensation has been shown to be an effective control technique in certain applications. However, co-petitioners assert that it is not a viable control strategy for Chase, because Chase's waste stream is dilute and highly variable in nature. The presence of multiple VOM compounds and the low boiling temperatures of the propellants used by Chase in its filling processes would require an extensive gas processing system, and the co-petitioners are not aware of commercially available equipment that would be adaptable to the constraints of Chase's operations.

PROPOSED ADJUSTED STANDARD

In their August 2, 1995 "Joint Motion to Modify Proposed Adjusted Standard Language," the joint proponents proposed that the following language be adopted for the adjusted standard:

- A. A source is subject to this adjusted standard if it fills aerosol cans and is located at 19th Street and Gardner Road, Broadview, Cook County, Illinois.
- B. The control requirements in Subpart DD shall not apply to the filling of aerosol cans utilizing the under-the-cup fill method at a source subject to this adjusted standard.
- C. Except as provided in this adjusted standard the owner or operator of a source subject to this adjusted standard shall fill up to two million cans per calendar year by the non-enhanced under-the-cup method. The owner or operator of a source subject to this adjusted standard shall fill all other cans by the through-the-valve method, other than trial runs of cans to verify product quality.
- D. Except as provided in this adjusted standard, any owner or operator of a source subject to this adjusted standard shall fill on a monthly basis at least 95% of cans filled on aerosol can filling lines at the source by the through-the-valve method and shall maintain records, on a daily basis, establishing the total number of cans filled at the source by the through-the-valve method and by the non-enhanced under-the-cup method. The owner or operator shall make these records available to the Agency upon request.

- E. If the owner or operator of a source subject to this adjusted standard modifies any filling lines after March 15, 1995, the owner or operator shall meet the requirements of Subpart DD.

While we find the proposed terms of the adjusted standard to be generally acceptable, the language of the final order will be modified to reflect more clearly that the adjusted standard applies solely to Chase.

HEALTH AND ENVIRONMENTAL EFFECTS

The petitioners assert that the impact to general air quality will be insignificant based upon the emission data of VOM from the can filling operations used by Chase and that the requested adjusted standard will have no adverse impact on health or the environment.

Chase estimates that a maximum of 2 million out of the approximately 34 million cans it fills per year will require filling by the UTC method. (Pet. at 5-6.) Chase asserts that if compliant methods of filling are used, *i.e.*, enhanced UTC or UTC with reclamation, an estimated maximum reduction of 0.5 tons of VOM per year would result. Chase believes an actual decrease of only 0.18 tons per year would result. Based on its assumption that it will fill a maximum of 2 million cans per year using the UTC method, Chase has calculated that the estimated difference between using the non-enhanced and the enhanced UTC methods on Line No. 2 would be equal to an additional 22 one hundredths of a ton of VOM per year. (Tr. at 9.) Chase contends that these reductions in emissions would have no quantifiable effect on ambient ozone levels in the Chicago-area severe ozone non-attainment area. (Pet. at 13.)

At hearing, the Agency stated its belief that the granting of this adjusted standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered in adopting the aerosol can filling regulation in Subpart DD of 35 Ill. Adm. Code 218. (Tr. at 9-10.)

CONSISTENCY WITH FEDERAL LAW

The petitioners assert that the proposed adjusted standard would be consistent with federal law. (Pet. at 14-15.) The granting of the adjusted standard will not violate any provision of the Clean Air Act, as amended in 1990 (CAA) (42 U.S.C. 7401 *et seq.*) since no federal RACT standards or Control Technology Guidelines (CTGs) have been established that are applicable to Chase's aerosol can filling operations. Pursuant to the Act and the CAA, the Board is empowered to determine what constitutes RACT for major sources, and in granting the requested relief of Chase, the Board would be determining what constitutes RACT for Chase. Accordingly, under its authority to adopt generic RACT regulations, the Board may grant the requested relief consistent with federal law.

CONCLUSION

We find that petitioners have demonstrated that an adjusted standard is appropriate for Chase's facility in Broadview, Illinois. Petitioners have demonstrated that Chase cannot comply with the requirements of 35 Ill. Adm. Code 218.686. Due to the variable nature of Chase's process, it is infeasible for Chase to use the TTV process for all its products. Furthermore, petitioners have demonstrated that, due to the complexity of Chase's emissions stream, Chase cannot use the enhanced UTC method or the UTC with reclamation method for all its products, and that it is infeasible for Chase to use add-on controls. We therefore find that there are factors relating to Chase's facility which are substantially and significantly different from those relied upon by the Board in adopting the regulation of general applicability, and that these factors warrant granting Chase an adjusted standard. The record further demonstrates that granting the requested adjusted standard will not result in health effects substantially and significantly more adverse than those considered in adopting the regulation of general applicability. Finally, we find that petitioners have demonstrated that the requested adjusted standard may be granted consistent with federal law. Accordingly, the requested adjusted standard is hereby granted.

This opinion constitutes the Board's conclusions of law and findings of fact in this matter.

ORDER

Petitioner Chase Products Company (Chase) is hereby granted an adjusted standard from the air emission control requirements of 35 Ill. Adm. Code Part 218 Subpart DD as it applies to the emissions of volatile organic material (VOM) from its manufacturing facility located in Broadview, Cook County, Illinois, subject to the following requirements:

- A. This adjusted standard applies to Chase's aerosol can filling operations at its facility located at 19th Street and Gardner Road, Broadview, Cook County, Illinois.
- B. The control requirements in Subpart DD shall not apply to the filling of aerosol cans utilizing the under-the-cup (UTC) fill method at Chase's Broadview facility.
- C. Except as limited in paragraph D in this adjusted standard, Chase shall be permitted to fill up to two million cans per calendar year by the non-enhanced UTC method. Chase shall fill all other cans by the through-the-valve (TTV) method, except for trial runs of cans to verify product quality.
- D. Except as limited in paragraph C in this adjusted standard, Chase shall fill on a monthly basis at least 95% of cans filled on aerosol can filling lines at the source by the TTV method.
- E. Chase shall maintain records, on a daily basis, establishing the total number of cans filled at the source by the TTV method and by the non-enhanced UTC method. Consistent with 35 Ill. Adm. Code 218.692, Chase shall maintain these records at the source for a period of at least 3 years, and shall make these records available to the Agency upon request.
- F. If Chase modifies any filling lines at its Broadview facility after March 15, 1995, Chase shall meet the requirements of Subpart DD.

IT IS SO ORDERED.

Section 41 of the Environmental Protection Act (415 ILCS 5/41 (1994)) provides for the appeal of final Board orders within 35 days of the date of service of this order. The Rules of the Supreme Court of Illinois establish filing requirements. (See also 35 Ill. Adm. Code 101.246 "Motions for Reconsideration.")

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above opinion and order was adopted on the ____ day of _____, 1996, by a vote of _____.

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board