

ILLINOIS POLLUTION CONTROL BOARD
February 23, 1989

IN THE MATTER OF:)
)
PROPOSED AMENDMENTS TO PART) R88-23
211 AND 215, LEAKS FROM)
SYNTHETIC ORGANIC CHEMICAL)
AND POLYMER MANUFACTURING)
EQUIPMENT)

PROPOSED RULE. SECOND NOTICE.

OPINION AND ORDER OF THE BOARD (by J.D. Dumelle):

This matter comes before the Board upon an August 24, 1988, Joint Proposal filed simultaneously with a Joint Motion by the Illinois Environmental Protection Agency (Agency), Amoco Chemical Company (Amoco), the Dow Chemical Company (Dow), Mobil Chemical Company, Inc. (Mobil), and Stepan Company (Stepan), all of whom will be generally referred to as "Joint Proponents" or "Joint Movants". The joint motion requests the Board to conduct an expedited rulemaking on the joint proposal.

On September 8, 1988, the Board adopted the joint proposal for First Notice publication. First Notice was published on September 30, 1988 at 12 Ill. Reg. 15294 and 15412. After proper notice, public hearings were held December 9, 1988 in Joliet and December 20, 1988 in Chicago.

Six public comments were submitted in this proceeding. On November 2, 1988, public comment No. 1 was submitted by the Office of the Secretary of State, Administrative Code Unit. All of the corrections suggested by the Administrative Code Unit are incorporated at Second Notice. On November 22, 1988, the Illinois Department of Commerce and Community Affairs (DCCA) submitted its Small Business Assistance Bureau's Impact Analysis with respect to this rulemaking. DCCA determined that this rulemaking will have no economic effect on small businesses. At the conclusion of hearing, Dow and Mobil, with the assent of the other proponents, made a motion that an economic impact study (EcIS) be waived because there is sufficient information in the record. On December 27, 1988 the Department of Energy and Natural Resources (DENR) filed a Negative declaration stating that the net economic impact of the proposed regulation is favorable and the costs of compliance are small or are borne by the proponent of the regulation. The Board agrees with DENR and finds that an EcIS is not necessary to support these amendments. The Board, therefore, proceeds directly to Second Notice.

Procedural History

Section 172 of the Clean Air Act (CAA) requires each State in which there are areas where the National Ambient Air Quality Standards (NAAQS) are exceeded, i.e., nonattainment areas, to adopt and submit revisions to its State Implementation Plan (SIP) to the United States Environmental Protection Agency (USEPA). Section 172(a)(2) and (b)(3) of the CAA require states to adopt reasonably available control technology (RACT) requirements for existing stationary sources in nonattainment areas. In 1978, the USEPA gave notice at 43 Fed. Reg. 21673 that the SIPs must include enforceable regulations reflecting the application of RACT to those stationary source categories for which the USEPA has published control techniques guidelines (CTGs). As a result, legally enforceable RACT regulations were required to be submitted for all sources for which CTGs were published by January 1977.

In August, 1981, the USEPA published a draft CTG entitled "Control of Volatile Organic Fugitive Emissions from Synthetic Organic Chemical, Polymer, and Resin Manufacturing Equipment". This CTG was finalized, renamed, and published in March, 1984, as "Control of Volatile Organic Compound (VOC) Leaks from Synthetic Organic Chemical and Polymer Manufacturing Equipment". This final CTG was submitted to the Illinois Pollution Control Board (Board) as an exhibit in the R86-39 proceedings.

In 1982, the Agency proposed regulations to the Board based on the draft CTG, which was the only Synthetic Organic Chemical and Manufacturing Industry (SOCMI) RACT guidance document available to the Agency. On August 21, 1985, the Board, in the R82-14 proceedings, adopted a revised version to the regulations, including Sections 215.421 through 215.429, at 35 Ill. Adm. Code Part 215, Subpart Q: Leaks from Synthetic Organic Chemical and Polymer Manufacturing Equipment. On October 3, 1985, these regulations were submitted by the Agency to the USEPA as part of the revised Illinois ozone SIP.

The USEPA reviewed the Illinois proposed SIP revisions and concluded that the Illinois SOCMI leak rule needed major revisions in order to conform with the USEPA definition of RACT specified in the CTG for the SOCMI category. Specifically, the USEPA stated that the Illinois rule contained excessive exemptions and did not contain a quarterly leak detection and repair program.

The USEPA informed the IEPA in 1986 that the Illinois rules covering the SOCMI category did not implement RACT. In several letters, the USEPA cited the inadequacy of the Illinois ozone SIP, in part due to inadequate SOCMI regulations in Illinois. The USEPA also indicated that the Illinois revised ozone SIP would not be approved by the USEPA unless Illinois corrected its

rules to reflect RACT for various source categories, including the SOCFI category.

The Agency examined each of the deficiencies in the Illinois SOCFI regulations and drafted a proposal (R86-39) that was submitted to the Board on January 28, 1987, to correct the cited deficiencies. The Board subsequently adopted a revised version of these regulations on November 25, 1987. The regulations were then submitted to the USEPA as revisions to the Illinois SIP.

In January, 1988, four major SOCFI facilities that have plants in the Chicago and East St. Louis urbanized areas (Amoco, Dow, Mobil, and Stepan) filed variance petitions with the Board asserting, in part, the technical infeasibility and economic unreasonableness of complying with 35 Ill. Adm. Code 215.437(c), which regulates open-ended valves that serve as sampling connections. After numerous discussions with the companies regarding their processes and operations and many consultations with the USEPA concerning the RACT and New Source Performance Standard (NSPS) requirements for controlling volatile organic material (VOM) emissions from sampling connections, the Agency concluded that the companies' claims had merit. Based upon discussions with the four major SOCFI sources, the Agency also concluded that the control measures specified in Subsection 215.437(c) were not technically feasible nor economically reasonable for other, similar SOCFI facilities. The Agency thus proposed a revision to the regulation in conjunction with the companies rather than have the various Illinois SOCFI facilities seek site-specific relief.

VOM Emissions From Sampling Connections

Sampling connections in a SOCFI plant are used for withdrawing samples from process units for analyses. The purpose of periodically analyzing the samples from process streams is to evaluate process unit performance and to verify the purity and composition of feed stocks, intermediates, and final products. In order to obtain a representative sample for analysis, process fluid contained in the sampling line must be purged prior to sampling.

Unlike other equipment components in a SOCFI plant, the CTG did not specifically identify RACT for controlling VOM emissions from sampling connections, nor did it include sampling connections as the type of equipment components which may be exempted from RACT requirements. The CTG, however, did present the results of studies of sampling connection emissions (the emission factor and the sampling connection counts) indicating that they may be significant and are important. The Joint Proponents believe that the sampling connection controls set forth in the proposal will provide for the proper disposal of the purged process fluid, and will eliminate or reduce the VOM emissions from the purged process fluid.

The companies' major objections to the present rule related to 35 Ill. Adm. Code 215.437(c). This subsection requires that open-ended valves which serve as sampling connections be retrofitted with a closed purged system or a closed vent system, and that these systems be designed and operated in a manner such that the purged process fluid shall either be returned to the process line with zero VOM emissions or be collected and recycled back to the process line with zero VOM emissions.

Amoco, Dow, and Mobil believe this regulation is not RACT because it is neither technologically feasible nor economically reasonable for their polymer manufacturing processes and operations. The unit processes in their plants involve polymerization of monomers. Their plants produce polystyrene, which is used as raw material for manufacturing various plastics and plastic foams. Styrene monomers, additives, and/or catalysts are introduced into the polymerization reactors and heated up to reaction temperature under specified pressure. The factors that affect the polymerization reaction are mainly the reaction temperature and the purity of the styrene. The polymerization unit process is very sensitive to the purity of raw materials and temperature. If the process fluid is allowed to remain in the closed purged or closed vent system, it could solidify at lower temperatures and thus plug the closed loop of the sampling system. If a closed purge sampling system is plugged by solid polymer, it will be useless for recycling and sampling without constant disassembling and cleaning. Even if the purged material can be recycled back to the reactor's process stream, impurities may be introduced into the process that will affect the quality of the product. In some cases, a run-away reaction or a line rupture may occur.

The objections of Stepan are somewhat different. Stepan's Elwood plant produces more than 300 types of intermediate and basic chemicals, which are mainly used in the soap and detergent industry, with some used in the polymer industry. Most of Stepan's raw materials and products have very low vapor pressures, and thus can be qualified as heavy liquids that are exempt from the requirements under Part 215.Subpart Q. Stepan does not specifically object to the requirement of a closed purge or closed vent sampling system in their variance petition. Stepan does object, however, to the lack of a component definition for open-ended valves.

After careful review of the CTG, discussions with the companies, and consultations with USEPA personnel, the Agency concluded that the Illinois requirements contained in 215.437(c) for controlling VOM emissions from sampling connections are more stringent than that required by the CTG since the CTG did not identify RACT for controlling VOM emissions from sampling connections. Based upon the information presented to the Agency by the companies, the Agency also concluded that the companies'

SOCMI unit processes may require special operating conditions and may not be able to tolerate slight impurities contained in the recycled purged process fluid that contaminate their process streams, rendering the designing and operation of a closed purge or closed vent system extremely difficult. Another aspect of the proposal is that in-situ sampling systems are exempt from the requirements of Section 215.437(c). Some SOCMI plants, due to the nature of their unit processes, can use in-situ sampling systems where the analyzing probes are implanted in the processing equipment and immersed in the process streams. The required process streams' chemical and/or physical properties analyses can then be done without extracting samples through sampling connections. A zero VOM emissions requirement or, as will be discussed later, a non detectable VOM emissions requirement can be achieved by this type of sampling system. The Agency thus believes that an in-situ sampling system should be exempt from Subsection 215.437(c).

Other amendments which relate to 215.437(c) include definitions for "closed purged system", "closed vent system", "control device", "in-situ sampling systems", and "purged process fluid". These technical terms are used either in 215.437(c) or in the proposed amendments to 215.437(c), but had not previously been defined. These terms are being defined in the rule to avoid confusion and to effectively implement the rule.

No Detectable VOM Emissions

A definition for "non detectable VOM emissions" has been added, and "zero VOM emissions" has been deleted. Dow, Mobil, Amoco, and Stepan object to the zero VOM emissions requirement in Subsection 215.437(c). These companies believe that it is impossible to comply with an absolute zero VOM emissions requirement. Similarly, Public Comment No. 3, submitted November 30, 1988 by Amoco Corporation, states that the use of "zero" is confusing because of the technical definition of zero. Amoco proposed that "zero" be replaced with "no detectable".

With regard to the zero VOM emissions requirement stated in Subsection 215.437(c), the Agency takes what it believes to be the USEPA's position, as stated in the NSPS, that the sampling connection control requirements are intended to cover the emissions from purged process fluid but not the small amount of emissions from the sample itself. Since absolute zero VOM emissions from purged process fluids and the samples may be technically impossible to achieve, the Agency believes that the term "zero VOM emissions" should be defined in the rule as VOM emitted into the atmosphere as indicated by an instrument reading at less than 500 ppm over background as determined in accordance with 40 CFR 60.485(c). The Agency states that this definition is essentially the same as the NSPS definition of "no detectable emissions".

The Board notes that there is no apparent disagreement as to the definition of the term employed in Section 215.437(c), but rather the disagreement is as to the term itself. The Board is persuaded that absolute zero VOM emission from purged process fluids and the samples is impossible to achieve and that requiring "zero" VOM emissions, however that term is defined, could be misleading to the community that must comply with these regulations. The Board prefers "no detectable" VOM emissions, as that term is, in and of itself, more accurate. The Board therefore has replaced "zero" with "no detectable" throughout the proposal at Second Notice.

Definitions

The Joint Proponents have proposed definitions in Section 211.122 for the following terms: "process unit," "liquids dripping," and "sensor" in Section 215.430; "synthetic organic chemical manufacturing of polymer plant" in Section 215.432; "process unit shut down" in subsection 215.435(a); and "pressure release" as it related to the term "pressure relief device" which is contained throughout the regulation. The USEPA also informed the Agency that it could not find the definition for "light liquid" in the Agency's ozone SIP. The Agency thus also proposed to include the existing definition of "light liquid" in this proposal. The Agency proposed to move this definition from Section 215.104 to Section 211.122 on the assumption that other SOCOMI definitions in 215.104 would be moved to Section 211.122 during the Chapter 2 clean-up proceeding. Since that proceeding's time frame is indefinite, the Agency believes that the definition of light liquid should remain in Section 215.104.

Although the CTG did not define these terms, the Agency takes the position that these terms should be defined in the rule. Defining these terms will avoid confusion and disputes between the Agency and the regulated community arising from the differences in their interpretations of the terms. The Agency proposed the NSPS definitions because they have been scrutinized and agreed upon by the SOCOMI industry through the Federal NSPS commenting process, and because these terms were not defined in the CTG. The Board accepts these definitions as proposed.

Miscellaneous Amendments

The Joint Proponents propose to change the exemption level found at Section 215.430 from "3660 mg/yr (4033 tons/yr) gaseous or light liquid volatile organic materials" to "3660 mg/yr (4033 tons/yr) gaseous and light liquid volatile organic materials". The determination of the process weight rate (PWR) exemption level in the rule and in the CTG is based on the combined gaseous and vapor volatile organic material PWRs. Their PWRs should not be considered separately as the word "or" in Section 215.430 implies. Thus, the word "or" is being changed to "and".

The Joint Proponents also suggest changing the term "equipment" to "component". Although the CTG uses the terms "equipment" and "component" interchangeably in practice, the term "component" usually refers to a subpart of a piece of equipment. Leaks may occur at one of the components of a piece of equipment. Since the term "component" has been defined in Section 211.122, the term "equipment" is being changed to "component" so that it will clearly indicate what component(s) of the equipment should be under leak detection and repair (LDAR) program requirements.

The Joint Proponents suggest adding to Section 215.430 the statement, "Those components that are not process unit components are exempt from Section 215.430 through 215.439". The CTG clearly indicates that RACT shall apply to "SOCMI process units". All the equipment component counts, VOM emissions, control technologies, and economic impact studies relate to the components of a piece of equipment that constitute a SOCMI process unit. Those equipment components that do not belong to a process unit should be exempted. Thus, their exemption is being explicitly stated in the rule.

The Joint Proponents suggest adding the phrase "in light liquid service" after the term "pump seal" in subsection 215.432(e). This addition exempts pump seal in heavy liquid service from instrument testing when liquids are observed dripping from pump seals. The Agency states that it agrees with industry that pumps in heavy liquid service from which liquid is observed dripping should not be tested before repairs. As it has been specified in subsection 215.432(g), components in heavy liquid service are exempt from routine instrument monitoring. Any component in heavy liquid service that it found to be leaking on the basis of sight, smell, or sound, however, should be repaired within 30 days after the leak is discovered. Thus, a pump seal in heavy liquid service from which a liquid is observed dripping should be repaired within the required time frame. It would not be necessary to test it before the repair is done. On the other hand, a pump seal in light liquid service from which liquid is observed dripping should be tested immediately before and after its repair to determine the instrument concentration reading in ppm at each point in time such that the non-leak or repaired definition of less than 10,000 ppm can be determined. An instrument monitoring test reading of a heavy liquid leak will be approximately 3000 ppm or less. This value is less than the RACT-defined leak level of 10,000 ppm.

The Joint Proponents suggest amending subsection 215.435(a) by the addition of the phrase "in light liquid service and in gas service" between the words "valves" and "inspected" in the second line of that subsection. Subsection 215.432(c) provides the regulated facilities with an alternate testing strategy for valves that are in gas service and in light liquid service. This

alternative strategy is generally referred to as "skip-period" monitoring. It should be applied only to those valves in light liquid service and in gas service, and it should be offered only to the SOCOMI plants that have demonstrated that they have attained and maintained a good performance level for the specific valves. A good performance level is attained if two percent or less of the valves that are in light liquid service and in gas service leak. If this level is attained for five consecutive quarters, then one or more of the subsequent quarterly LDAR period for those valves can be skipped. That is, a qualified plant owner or operator can conduct an annual LDAR instead of a quarterly LDAR for those valves. Since the alternate testing strategy applies only to valves in light liquid service and in gas service, it should be explicitly stated in Section 215.435 that the owner or operator of SOCOMI plant need only report the total number of valves in light liquid and in gas service that he inspected. This will prevent the intentional or inadvertent inclusion of heavy liquid service valves in the quarterly reports which may, in turn, distort or skew the number count and percentage of leaking valves that are used to determine a good level of performance.

The Joint Proponents propose to amend Appendix D by correcting the typographical errors in the list and by replacing the USEPA OCPDB number assigned to each of the SOCOMI chemicals in the list with the CAS number assigned to the same chemical. OCPDB numbers are reference indexes assigned to the various chemicals in the USEPA's Organic Chemical Producers Data Base (OCPDB). CAS numbers are chemical registry numbers developed by the Chemical Abstract Service (CAS) Division of the American Chemical Society (ACS). The present Appendix D, which contains the list of chemicals and polymers produced by the affected plants, was published in the draft CTG. It contains numerous typographical errors that were contained in the draft CTG list. Some of the chemicals such as OCPDB No. 710, 1,3-butylene glycol were inadvertently omitted from the list. These typographical errors therefore should be corrected. Although the final CTG stated that RACT should be applied to "equipment in process units operated to produce one or more of the synthetic organic chemicals listed in Appendix E of the proposed standards of performance for SOCOMI (46 Fed. Reg. 1136, January 5, 1981), methyl tert-butyl ether (MTBE), polyethylene, polypropylene, and polystyrene", the Agency proposes to use the SOCOMI list in Section 60.489 in the final NSPS which contains the same chemicals, but which uses the CAS numbers in place of OCPDB numbers. The reasons for the Agency's preference of using the CAS numbers rather than the OCPDB numbers are as follows: (1) the CAS registry number system is a universally known system and is acceptable and accessible to chemistry professionals in the academic and industrial fields in the United States and in the world, (2) the USEPA OCPDB number system is known and accessible only to a few people at the USEPA, and (3) the CAS registry

system is a unique, structure-based listing of organic compounds that contains all the significant chemical research information reported in the international literature since 1907. In comparison, the OCPDB system appears to have a very short history and, therefore, may be inferior.

The Board finds the proposed amendments to be technically feasible and economically reasonable.

ORDER

The Board hereby proposes for Second Notice the following rule to be filed with the Joint Committee on Administrative Rules.

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE B: AIR POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD

SUBCHAPTER C: EMISSION STANDARDS AND LIMITATIONS FOR STATIONARY SOURCES

PART 211
DEFINITIONS AND GENERAL PROVISIONS

SUBPART B: DEFINITIONS

Section
211.121 Other Definitions
211.122 Definitions

Section 211.122 Definitions

"Closed Purge System": A system that is not open to the atmosphere and that is composed of piping, connections, and, if necessary, flow inducing devices that transport liquid or vapor from a piece or pieces of equipment to a control device, or return the liquid or vapor to the process line.

"Closed Vent System": A system that is not open to the atmosphere and that is composed of piping, connections, and, if necessary, flow inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device, or return the gas or vapor to the process line.

"Component": Any piece of equipment which has the potential to leak volatile organic material including, but not limited to, pump seals, compressor seals, seal oil degassing vents, pipeline valves, pressure relief

devices, process drains and open ended pipesvalves. This definition excludes valves which are not externally regulated, flanges, and equipment in heavy liquid service. For purposes of Subpart Q (35 Ill. Adm. Code 215), this definition also excludes bleed ports of gear pumps in polymer service.

"Control Device": For purposes of Subpart Q, an enclosed combustion device, vapor recovery system, flare, or closed container.

"In-situ Sampling Systems": Nonextractive samplers or in-line samplers.

"Light Liquid": Volatile organic material in the liquid state which is not defined as a heavy liquid.

"Liquids Dripping": Any visible leaking from a seal including spraying, misting, clouding and ice formation.

"Pressure Release": The emission of materials resulting from system pressure being greater than set pressure of the pressure relief device.

"Process Unit": Components assembled to produce, as intermediate or final products, one or more of the chemicals listed in Appendix D. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

"Process Unit Shutdown": A work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than 24 hours is not a process unit shutdown. The use of spare components and technically feasible bypassing of components without stopping production are not process unit shutdowns.

"Purged Process Fluid": Liquid or vapor from a process unit that contains volatile organic material and that results from flushing or cleaning the sample line(s) of a process unit so that a uncontaminated sample may then be taken for testing or analysis.

"Sensor": A device that measures a physical quantity or the change in a physical quantity such as temperature, pressure, flow rate, pH, or liquid level.

"Synthetic Organic Chemical or Polymer Manufacturing Plant": A plant that produces, as intermediates or final products, one or more of the chemicals or polymers listed in Appendix D.

"Zero Volatile Organic Material Emissions": A discharge of volatile organic material into the atmosphere as indicated by an instrument reading of less than 500 ppm above background as determined in accordance with 40 CFR 60.485(c).

(Source: Amended at _____ Ill. Reg. _____,
effective _____)

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE B: AIR POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD
SUBCHAPTER C: EMISSIONS STANDARDS AND LIMITATIONS FOR
STATIONARY SOURCES

PART 215
ORGANIC MATERIAL EMISSION STANDARDS AND LIMITATIONS

SUBPART A: GENERAL PROVISIONS

Section
215.100 Introduction
215.101 Clean-up and Disposal Operations
215.102 Testing Methods
215.103 Abbreviations and Conversion Factors
215.104 Definitions
215.105 Incorporations by Reference
215.106 Afterburners
215.107 Determination of Applicability

SUBPART Q: LEAKS FROM SYNTHETIC ORGANIC CHEMICAL AND
POLYMER MANUFACTURING EQUIPMENT

Section
215.420 Applicability
215.421 General Requirements
215.422 Inspection Program Plan for Leaks
215.423 Inspection Program for Leaks
215.424 Repairing Leaks
215.425 Recordkeeping for Leaks
215.426 Reporting for Leaks
215.427 Alternative Program for Leaks
215.428 Compliance Dates
215.429 Compliance Plan
215.430 General Requirements
215.431 Inspection Program Plan for Leaks
215.432 Inspection Program for Leaks

215.433	Repairing Leaks
215.434	Recordkeeping for Leaks
215.435	Report for Leaks
215.436	Alternative Program for Leaks
215.437	Open-Ended Valves
215.438	<u>Standards for Control Devices</u>
215.4389	<u>Compliance Plan</u>

Appendix D List of Chemicals Defining Synthetic Organic
Chemical and Polymer Manufacturing

SUBPART A: GENERAL PROVISIONS

Section 215.104 Definitions

The definitions of 35 Ill. Adm. Code 201 and 211 apply to this Part, as well as the definition contained in this Section. Where the definition contained in this Section is more specific than that found in 35 Ill. Adm. Code 201 or 211, it shall take precedence in application of this Part.

~~"Light Liquid": Volatile organic material in the liquid state which is not defined as heavy liquid.~~

(SOURCE: Amended at ____ Ill. Reg.
effective _____)

Section 215.105 Incorporation by Reference

The following materials are incorporated by reference:

- a) American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103:
 - 1) ASTM D 1644-59 Method A
 - 2) ASTM D 1475-60
 - 3) ASTM D 2369-73
 - 4) ASTM D 2879-83 (Approved 1983)
 - 5) ASTM D 323-82 (Approved 1982)
 - 6) ASTM D 86-82 (Approved 1982)
 - 7) ASTM E 260-73 (Approved 1973), E 168-67 (Reapproved 1977), E 169-63 (Reapproved 1981), E 20 (Approved 1985)
 - 8) ASTM D 97-66

- 9) ASTM D 1946-67
- 10) ASTM D 2382-76
- 11) ASTM D 2504-83
- 12) ASTM D 2382-83

- b) Federal Standard 141a, Method 4082.1
- c) National Fire Codes, National Fire Prevention Association, Battery March Park, Quincy, Massachusetts 02269 (1979)
- d) United States Environmental Protection Agency, Washington, D.C., EPA-450/2-77-026, Appendix A- (October 1977).
- e) United States Environmental Protection Agency, Washington, D.C., EPA-450/2-78-051 Appendix A and Appendix B (December 1978).
- f) Standard Industrial Classification Manual, published by Executive Office of the President, Office of Management and Budget, Washington, D.C., 1972
- g) 40 CFR 60, Appendix A, (1986)
- h) United States Environmental Protection Agency, Washington D.C., EPA-450/2-78-041.

BOARD NOTE: The incorporations by reference listed above contain no later amendments or editions.

(Source: Amended at _____ Ill. Reg. _____, effective _____)

SUBPART Q: LEAKS FROM SYNTHETIC ORGANIC CHEMICAL AND POLYMER MANUFACTURING EQUIPMENT

Section 215.420 Applicability

The provisions of Sections 215.421 through 215.429 of this subpart shall apply to all plants in the State of Illinois which manufacture synthetic organic chemicals and polymers, except those located in any of the following counties: Will, McHenry, Cook, DuPage, Lake, Kane, Madison, St. Clair, Macoupin, and Monroe. The provisions of Section 215.430 through ~~215.438~~ 215.329 shall apply to the counties specifically enumerated above. In addition, if any county is redesignated as non-attainment by the USEPA subsequent to December 31, 1987, the

owner or operator of a plant located in that county shall comply with the requirements of Sections 215.430 through ~~215.438~~ 215.439 upon the effective date of the redesignation.

(Source: Amended at _____ Ill. Reg. _____,
effective _____)

Section 215.430 General Requirements

The owner or operator of a plant which processes more than 3660 Mg/yr (4033 tons/year) gaseous ~~or~~ and light liquid volatile organic material, and whose components are used to manufacture the synthetic organic chemicals or polymers listed in Appendix D, shall ~~conduct leak inspection and repair programs for that equipment in accordance with this Subpart~~ comply with Sections 215.430 to 215.439. Leak inspection and repair programs shall be conducted for that equipment The provisions of Sections 215.430 to 215.439 are applicable to components containing 10 percent or more by weight volatile organic material as determined by ASTM method E-168, E-169 and E-260, incorporated by reference in Section 215.105. Those components that are not process unit components are exempt from Sections 215.430 to 215.439. A component shall be considered to be leaking if the volatile organic material is equal to, or is greater than 10,000 ppmv as methane or hexane as determined by USEPA Reference Method 21, as specified at 40 CFR 60, Appendix A, incorporated by reference in Section 215.105, indication of liquids dripping, or indication by a sensor that a seal or barrier fluid system has failed. The provisions of this Subpart are not applicable if the equipment components are used to produce heavy liquid chemicals only from heavy liquid feed or raw materials.

(Source: Amended at _____ Ill. Reg. _____,
effective _____)

Section 215.432 Inspection Program for Leaks

The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to Section 215.430 through ~~215.438~~, 215.439, shall for the purposes of detecting leaks, conduct a component inspection program utilizing the test methods specified in USEPA Reference Method 21, 40 CFR 60, Appendix A (1986), incorporated by reference in Section 215.105, consistent with the following provisions:

- a) Test annually those components operated near extreme temperature or pressure such that they would be unsafe to routinely monitor, and those components located more than two meters above permanent worker access structures or surfaces;

- b) Test quarterly all other pressure relief valves in gas service, pumps in light liquid service, valves in light liquid service and in gas service, and compressors.
- c) If less than or equal to 2 percent of the valves in light liquid service and in gas service tested pursuant to subsection (b) are found not to leak for 5 consecutive quarters, no leak tests shall be required for three consecutive quarters. Thereafter, leak tests shall resume for the next quarter. If that test shows less than or equal to 2 percent of the valves in light liquid service and in gas service are leaking, then no tests are required for the next 3 quarters. If more than 2 percent are leaking, then tests are required for the next 5 quarters.
- d) Observe visually all pump seals weekly.
- e) Test immediately any pump seal in light liquid service from which liquids are observed dripping.
- f) Test any relief valve within 24 hours after it has vented to the atmosphere.
- g) Routine instrument monitoring of valves which are not externally regulated, flanges, and equipment components in heavy liquid service, is not required. However, any valve which is not externally regulated, flange, or piece of equipment component in heavy liquid service that is found to be leaking on the basis of sight, smell or sound shall be repaired as soon as practicable but no later than 30 days after the leak is found.
- h) Test immediately after repair any component that was found leaking.
- i) Within 1 hour of its detection, a weatherproof, readily visible tag, in bright colors such as red or yellow, bearing an identification number and the date on which the leak was detected must be affixed on the leaking component and remain in place until the leaking component is repaired.
- j) Any component that is in vacuum service, or any pressure relief devices connected to an operating flare header or to a vapor recovery devices are is exempt from the monitoring requirements in this Section.

(Source: Amended at _____ Ill. Reg. _____,
effective _____)

Section 215.435 Report for Leaks

The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to Section 215.430 through ~~215.438~~ 215.439 shall:

- a) Submit quarterly reports to the Agency on or before March 31, June 30, September 30, and December 31 of each year, listing all leaking components identified pursuant to Section 215.432 but not repaired within 15 days, all leaking components awaiting process unit shutdown, the total number of components inspected, the type of components inspected, and the total number of components found leaking, the total number of valves in light liquid and in gas service inspected and the number and percentage of valves found leaking.
- b) Submit a signed statement with the report attesting that all monitoring and repairs were preformed as required under Section 215.430 through 215.436.

(Source: Amended at _____ Ill. Reg. _____, effective _____)

Section 215.437 Open-Ended Valves

- a) Each open-ended valve shall be equipped with a cap, blind flange, plug, or a second valve, except during operations requiring fluid flow through the open-ended valve.
- b) Each open-ended valve equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.
- c) Components which are Open-ended valves and which serve as a sampling connection shall be equipped with a closed purge system or closed vent system controlled such that:
 - 1) A closed purge system or closed vent system shall return Purged purged process fluid shall be returned to the process line with zero VOM volatile organic material emissions to the atmosphere, or
 - 2) A closed purge system or closed vent system shall collect and recycle Purged purged process fluid shall be collected and recycled to the process line with zero volatile organic material emissions to the atmosphere, or
 - 3) Purged process fluid shall be transported to a control device that complies with the requirements of Section 215.438.

d) In-situ sampling systems are exempt from subsection (c).

(Source: Amended at _____ Ill. Reg. _____,
effective _____)

Section 215.438 Standards for Control Devices

Control devices used to comply with Section 215.437(c) shall
comply with following:

- a) If the control device is a vapor recovery system (for example, condensers and adsorbers), it shall be designed and operated to recover the volatile organic material emissions vented to it with an efficiency of 95 percent or greater.
- b) If the control device is an enclosed combustion device, it shall be designed and operated to reduce the volatile organic material emissions vented to it with an efficiency of 95 percent or greater, or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816°C.
- c) If the control device is a flare, it shall:
 - 1) Be designed for and operated with no visible emissions as determined by USEPA Reference Method 22, 40 CFR 60, Appendix A (1986), incorporated by reference in Section 215.105, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
 - 2) Be operated with a pilot flame present at all times and shall be monitored with a thermocouple or any other equivalent device to detect the presence of the pilot flame.
 - 3) Be steam-assisted, air assisted, or nonassisted.
 - 4) Be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be calculated using the following equation:

$$H_r = K \left(\sum_{i=1}^n C_i H_i \right)$$

Where:

H_r = Net heating value of the sample, MJ/scm: where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C.

$$K = \text{Constant, } \frac{1}{\text{ppm}} \left(\frac{\text{g mole}}{\text{scm}} \right) \left(\frac{\text{MJ}}{\text{kcal}} \right)$$

where

standard temperature for g mole is 20 C.
scm

C_i = Concentration of sample component i, in ppm, as measured by USEPA Reference Method 18, 40 CFR 60, Appendix A (1986), and ASTM D 2504-83, both incorporated by reference in Section 215.105.

H_i = Net heat of combustion of sample component i, kcal/g mole. The heats of combustion may be determined using ASTM D 2382-83, incorporated by reference in Section 215.105, if published values are not available or cannot be calculated.

5) Steam-assisted and nonassisted flares shall be designed and operated with an exit velocity, as determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by USEPA Reference Method 2 or 2A, 40 CFR 60, Appendix A (1986) incorporated by reference in Section 215.105, as appropriate; by the unobstructed (free) cross sectional area of the flare tip, less than 18 m/sec (60 ft/sec.).

6) Air-assisted flares shall be designed and operated with an exit velocity less than the maximum permitted velocity, V_{max}, as determined by the following equation:

$$V_{\text{max}} = 8.706 + 0.7084(H_r)$$

V_{max} = Maximum permitted velocity, m/sec.

8.706 = Constant.

0.7084 = Constant.

H_r = The net heating value as determined in subsection (c)(4) of this section.

- d) If the control device is a closed container, it shall be designed and operated to reduce the volatile organic material emissions, vented from purged process fluid after transfer, to zero volatile organic material emissions as determined by USEPA Reference Method 21 as specified at 40 CFR 60, Appendix A (1986), incorporated by reference in Section 215.105. For purposes of this Section, the phrase "after transfer" shall refer to the time at which the entire amount of purged process fluid resulting from a flushing or cleaning of the sample line enters the closed container or containers including the final container(s) prior to disposal.
- e) The owner or operator of a control device shall monitor the control device to ensure that it is operated and maintained in conformance with its design.
- f) The control device shall be operated at all times when emissions may be vented to it.

(Source: Former Section 215.438 renumbered to Section 215.439, new Section 215.438 adopted at _____ Ill. Reg. _____, effective _____)

Section 215.438 215.439 Compliance Date

The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to Sections 215.430 through ~~215.438~~ 215.439 shall comply with the standards and limitations of those Sections no later than December 31, 1987.

(Source: Section 215.439 renumbered from Section 215.438 and amended at _____ Ill. Reg. _____, effective _____)

Appendix D: List of Chemicals Defining Synthetic organic Chemical and Polymer manufacturing

<u>CCPDB No.*</u>	<u>CAS No. a</u>	<u>Chemical</u>
20	<u>105-57-7</u>	Acetal
30	<u>75-07-0</u>	Acetaldehyde
40	<u>107-89-1</u>	Acetaldol

50	<u>60-35-5</u>	Acetamide
65	<u>103-84-4</u>	Acetanilide
70	<u>64-19-7</u>	Acetic acid
80	<u>108-24-7</u>	Acetic anhydride
90	<u>67-64-1</u>	Acetone
100	<u>75-86-5</u>	Acetone cyanohydrin
110	<u>75-05-8</u>	Acetonitrile
120	<u>98-86-2</u>	Acetophenone
125	<u>75-36-5</u>	Acetyl chloride
130	<u>74-86-2</u>	Acetylene
140	<u>107-02-8</u>	Acrolein
150	<u>79-06-1</u>	Acrylamide
160	<u>79-10-7</u>	Acrylic acid & esters
170	<u>107-13-1</u>	Acrylonitrile
180	<u>124-04-9</u>	Adipic acid
185	<u>111-69-3</u>	Adiponitrile
190	(b)	Alkyl naphthalenes
200	<u>107-18-6</u>	Allyl alcohol
210	<u>107-05-1</u>	Allyl chloride
220	<u>1321-11-5</u>	Aminobenzoic acid
230	<u>111-41-1</u>	Aminoethylethanolamine
235	<u>123-30-8</u>	p-aminophenol
240	<u>628-63-7,</u> <u>123-92-2</u>	Amyl acetates
250	<u>71-41-0c</u>	Amyl alcohols
260	<u>110-58-7</u>	Amyl amine
270	<u>543-59-9</u>	Amyl chloride
280	<u>110-68-7c</u>	Amyl mercaptans
290	<u>1322-06-1</u>	Amyl phenol
300	<u>62-53-3</u>	Aniline
310	<u>142-04-1</u>	Aniline hydrochloride
320	<u>29191-52-4</u>	Anisidine
330	<u>100-66-3</u>	Anisole
340	<u>118-92-3</u>	Anthranilic acid
350	<u>84-65-1</u>	Anthraquinone
360	<u>100-52-7</u>	Benzaldehyde
370	<u>55-21-0</u>	Benzamide
380	<u>71-43-2</u>	Benzene
390	<u>98-48-6</u>	Benzenedisulfonic acid
400	<u>98-11-3</u>	Benzene-sulfonic Benzenesulfonic acid
410	<u>134-81-6</u>	Benzil
420	<u>76-93-7</u>	Benzilic acid
430	<u>65-85-0</u>	Benzoic acid
440	<u>119-53-9</u>	Benzoin
450	<u>100-47-0</u>	Benzonitrile
460	<u>119-61-9</u>	Benzophenone
480	<u>98-07-7</u>	Benzotrichloride
490	<u>98-88-4</u>	Benzoyl chloride
500	<u>100-51-6</u>	Benzyl alcohol
510	<u>100-46-9</u>	Benzyl amine <u>Benzylamine</u>
520	<u>120-51-4</u>	Benzyl benzoate

530	<u>100-44-7</u>	Benzyl chloride
540	<u>98-87-3</u>	Benzyl dichloride
550	<u>92-52-4</u>	Biphenyl
560	<u>80-05-7</u>	Bisphenol A
570	<u>10-86-1</u>	Bromobenzene
580	<u>27497-51-4</u>	Bromonaphthalene
590	<u>106-99-0</u>	Butadiene
592	<u>106-98-9</u>	1-butene
600	<u>123-86-4</u>	n-butyl acetate
630	<u>141-32-2</u>	n-butyl acrylate
640	<u>71-36-3</u>	n-butyl alcohol
650	<u>78-92-2</u>	s-butyl alcohol
660	<u>75-65-0</u>	t-butyl alcohol
670	<u>109-73-9</u>	n-butylamine
680	<u>13952-84-6</u>	s-butylamine
690	<u>75-64-9</u>	t-butylamine
700	<u>98-73-7</u>	p- per tert-butyl benzoic acid
	<u>107-88-0</u>	1,3-butylene glycol
750	<u>123-72-8</u>	n-butyraldehyde
760	<u>107-92-6</u>	Butyric acid
770	<u>106-31-0</u>	Butyric anhydride
780	<u>109-74-0</u>	Butyronitrile
785	<u>105-60-2</u>	Caprolactam
790	<u>75-1-50</u>	Carbon disulfide
800	<u>558-13-4</u>	Carbon tetrabromide
810	<u>55-23-5</u>	Carbon tetrachloride
820	<u>9004-35-7</u>	Cellulose acetate
840	<u>79-11-8</u>	Chloroacetic acid
850	<u>108-42-9</u>	m-chloroaniline
860	<u>95-51-2</u>	o-chloroaniline
870	<u>106-47-8</u>	p-chloroaniline
880	<u>35913-09-8</u>	Chlorobenzaldehyde
890	<u>108-90-7</u>	Chlorobenzene
900	<u>118-91-2,</u>	Chlorobenzoic acid
	<u>535-80-8,</u>	
	<u>74-11-3c</u>	
905	<u>2136-81-4</u>	Chlorobenzotrichloride
	<u>2136-89-2,</u>	
	<u>5216-25-1c</u>	
910	<u>1321-03-5</u>	Chlorobenzoyl chloride
920	<u>75-45-6</u>	Chlorodifluoroethane
921	<u>25497-29-4</u>	Chlorodifluoromethane
930	<u>67-66-3</u>	Chloroform
940	<u>25586-43-0</u>	Chloronaphthalene
950	<u>88-73-3</u>	o-chloronitrobenzene
951	<u>100-00-5</u>	p-chloronitrobenzene
960	<u>25167-80-0</u>	Chlorophenols
964	<u>126-99-8</u>	Chloroprene
965	<u>7790-94-5</u>	Chlorosulfonic acid
970	<u>108-41-8</u>	m-chlorotoluene
980	<u>95-49-8</u>	o-chlorotoluene
990	<u>106-43-4</u>	p-chlorotoluene

992	<u>75-72-9</u>	Chlorotrifluoromethane
1000	<u>108-39-4</u>	m-cresol
1010	<u>95-48-7</u>	o-cresol
1020	<u>106-44-5</u>	p-cresol
1021	<u>1319-77-3</u>	Mixed cresols
1030	<u>1319-77-3</u>	Cresylic acid
1040	<u>4170-30-0</u>	Crotonaldehyde
1050	<u>3724-65-0</u>	Crontonic acid
1060	<u>98-82-8</u>	Cumene
1070	<u>80-15-9</u>	Cumene hydroperoxide
1080	<u>372-09-8</u>	Cyanoacetic acid
1090	<u>506-77-4</u>	Cyanogen chloride
1100	<u>108-80-5</u>	Cyanuric acid
1110	<u>108-77-0</u>	Cyanuric chloride
1120	<u>110-82-7</u>	Cyclohexane
1130	<u>108-93-0</u>	Cyclohexanol
1140	<u>108-94-1</u>	Cyclohexanone
1150	<u>110-83-8</u>	Cyclohexene
1160	<u>108-91-8</u>	Cyclohexylamine
1170	<u>111-78-4</u>	Cyclooctadiene
1180	<u>112-30-1</u>	Decanol
1190	<u>123-42-2</u>	Diacetone alcohol
1200	<u>27576-04-1</u>	Diaminobenzoic acid
1210	<u>95-76-1,</u> <u>95-82-9,</u> <u>554-00-7,</u> <u>608-27-5,</u> <u>608-31-1,</u> <u>626-43-7,</u> <u>27134-27-6,</u> <u>57311-92-9c</u>	Dichloroaniline
1215	<u>541-73-1</u>	m-dichlorobenzene
1216	<u>95-50-1</u>	o-dichlorobenzene
1220	<u>106-46-7</u>	p-dichlorobenzene
1221	<u>75-71-8</u>	Dichlorodifluoromethane
1240	<u>114-44-4</u> <u>107-06-2</u>	Dichloroethyl ether 1,2-dichloroethane (EDC)
1250	<u>96-23-1</u>	Dichlorohydrin
1270	<u>26952-23-8</u>	Dichloropropene
1280	<u>101-83-7</u>	Dicyclohexylamine
1290	<u>109-89-7</u>	Diethylamine
1300	<u>111-46-6</u>	Diethylene glycol
1304	<u>112-36-7</u>	Diethylene glycol diethyl ether
1305	<u>111-96-6</u>	Diethylene glycol dimethyl ether
1310	<u>112-34-5</u>	Diethylene glycol monobutyl glycol monobutyl ether
1320	<u>124-17-7</u>	Diethylene glycol monobutyl glycol monobutyl ether acetate
1330	<u>111-90-0</u>	Diethylene glycol monoethyl glycol monoethyl ether
1340	<u>112-15-2</u>	Diethylene glycol monoethyl glycol monomethyl ether acetate

1360	<u>111-77-3</u>	Diethylene glycol monomethyl glycol <u>monomethyl ether</u>
1420	<u>64-67-5</u>	Diethyl sulfate
1430	<u>75-37-6</u>	Difluoroethane
1440	<u>25167-70-8</u>	Diisobutylene
1442	<u>26761-40-0</u>	Diisodecyl phthalate
1444	<u>27554-26-3</u>	Diisooctyl phthalate
1450	<u>674-82-8</u>	Diketene
1460	<u>124-40-3</u>	Dimethylamine
1470	<u>121-69-7</u>	N,N-dimethylaniline
1480	<u>115-10-6</u>	N,N-dimethylether <u>dimethyl ether</u>
1490	<u>68-12-2</u>	N,N-dimethylformamide
1495	<u>57-14-7</u>	Dimethylhydrazine
1500	<u>77-78-1</u>	Dimethyl sulfate
1510	<u>75-18-3</u>	Dimethyl sulfide
1520	<u>67-68-5</u>	Dimethylsulfoxide <u>Dimethyl sulfoxide</u>
1530	<u>120-61-6</u>	Dimethylterephthalate <u>Dimethyl</u> <u>terephthalate</u>
1540	<u>99-34-3</u>	3,5-dinitrobenzoic acid
1545	<u>51-28-5</u>	Dinitrophenol
	<u>25321-14-6</u>	Dinitrotoluene
1560	<u>123-91-1</u>	Dioxane
1570	<u>646-06-0</u>	Dioxolane
1580	<u>122-39-4</u>	Diphenylamine
1590	<u>101-84-4</u>	Diphenyl oxide
1600	<u>102-08-9</u>	Diphenyl thiourea
1610	<u>25265-71-8</u>	Dipropylene glycol
1620	<u>25378-22-7</u>	Dodecene
1630	<u>28675-17-4</u>	Dodecylaniline
1640	<u>27193-86-8</u>	Dodecylphenol
1650	<u>106-89-8</u>	Epichlorohydrin
1660	<u>64-17-5</u>	Ethanol
1661	<u>141-43-5c</u>	Ethanolamines
1670	<u>141-78-6</u>	Ethyl acetate
1680		Ethyl
	<u>141-97-9</u>	<u>Ethyl acetoacetate</u>
1690	<u>140-88-5</u>	<u>Ethyl acrylate</u>
1700	<u>75-04-7</u>	Ethylamine
1710	<u>100-41-4</u>	Ethylbenzene
1720	<u>74-96-4</u>	Ethyl bromide
1730	<u>9004-57-3</u>	Ethylcellulose
1740	<u>75-00-3</u>	Ethyl chloride
1750	<u>105-39-5</u>	Ethyl chloroacetate
1760	<u>105-56-6</u>	Ethylcyanoacetate
1770	<u>74-85-1</u>	Ethylene
1780	<u>96-49-1</u>	Ethylene carbonate
1790	<u>107-07-3</u>	Ethylene Chlorohydrin
1800	<u>107-15-3</u>	Ethylenediamine
1810	<u>106-93-4</u>	Ethylene dibromide
1830	<u>107-21-1</u>	Ethylene glycol
1840	<u>111-55-7</u>	Ethylene glycol diacetate
1870	<u>110-71-4</u>	Ethylene glycol dimethyl ether

1890	<u>111-76-2</u>	Ethylene glycol monobutyl ether
1900	<u>112-07-2</u>	Ethylene glycol monobutyl ether acetate
1910	<u>110-80-5</u>	Ethylene glycol monoethyl ether
1920	<u>111-15-9</u>	Ethylene glycolmonoethyl ether acetate
1930	<u>109-86-4</u>	Ethylene glycolmonoethyl ether
1940	<u>110-49-6</u>	Ethylene glycolmonomethyl ether acetate
1960	<u>122-99-6</u>	Ethylene glycol monophenyl ether
1970	<u>2807-30-9</u>	Ethylene glycolmonopropyl ether
1980	<u>75-21-8</u>	Ethylene oxide
1990	<u>60-29-7</u>	Ethyl ether
2000	<u>104-76-7</u>	2-ethylhexanol
2010	<u>122-51-0</u>	Ethyl orthoformate
2020	<u>95-92-1</u>	Ethyl oxalate
2030	<u>41892-71-1</u>	Ethyl sodium oxaloacetate
2040	<u>50-00-0</u>	Formaldehyde
2050	<u>75-12-7</u>	Formamide
2060	<u>64-18-6</u>	Formic acid
2070	<u>110-17-8</u>	Fumaric acid
2073	<u>98-01-1</u>	Furfural
2090	<u>56-81-5</u>	Glycerol (Synthetic)
2091	<u>26545-73-7</u>	Glycerol dichlorohydrin
2100	<u>25791-96-2</u>	Glycerol triether
2110	<u>56-40-6</u>	Glycine
2120	<u>107-22-2</u>	Glyoxal
2145	<u>118-74-1</u>	Hexachlorobenzene
2150	<u>67-72-1</u>	Hexachloroethane
2160	<u>36653-82-4</u>	Hexadecyl alcohol
2165	<u>124-09-4</u>	Hexamethylenediamine
2170	<u>629-11-8</u>	Hexamethylene glycol
2180	<u>100-97-0</u>	Hexamethylenetetramine
2190	<u>74-90-8</u>	Hydrogen cyanide
2200	<u>123-31-9</u>	Hydroquinone
2210	<u>99-96-7</u>	p-hydroxy-benzoic <u>p-hydroxybenzoic acid</u>
2240	<u>26760-64-5</u>	Isoamylene
2250	<u>78-83-1</u>	Isobutanol
2260	<u>110-19-0</u>	Isobutyl acetate
2261	<u>115-11-7</u>	Isobutylene
2270	<u>78-84-2</u>	Isobutyraldehyde
2280	<u>79-31-2</u>	Isobutyric acid
2300	<u>25339-17-7</u>	Isodecanol
2320	<u>26952-21-6</u>	Isooctyl alcohol
2321	<u>78-78-4</u>	Isopentane
2330	<u>78-59-1</u>	Isophorone
2340	<u>121-91-5</u>	Isophthalic acid
2350	<u>78-79-5</u>	Isoprene
2360	<u>67-63-0</u>	Isopropanol
2370		isopropyl

	<u>108-21-4</u>	<u>Isopropyl acetate</u>
2380	<u>75-31-0</u>	Isopropylamine
2390	<u>75-29-6</u>	Isopropyl chloride
2400	<u>25168-06-3</u>	Isopropylphenol
2410	<u>463-51-4</u>	Ketene
2414	<u>(b)</u>	<u>Linear alkylsulfonate alkyl</u> <u>sulfonate</u>
2417	<u>123-01-3</u>	<u>Linear alkylbenzene</u> <u>(Linear dodecylbenzene)</u>
2420	<u>110-16-7</u>	Maleic acid
2430	<u>108-31-6</u>	Maleic anhydride
2440	<u>6915-15-7</u>	Malic acid
2450	<u>141-79-7</u>	Mesityl oxide
2460	<u>121-47-1</u>	Metanilic acid
2240	<u>79-41-4</u>	Methacrylic acid
2490	<u>563-47-3</u>	Methallyl chloride
2500	<u>67-56-1</u>	Methanol
2510	<u>79-20-9</u>	Methyl acetate
2520	<u>105-45-3</u>	Methyl acetoacetate
2530	<u>74-89-5</u>	Methylamine
2540	<u>100-61-8</u>	n-methylaniline
2545	<u>74-83-9</u>	Methyl bromide
2550	<u>37365-71-2</u>	Methyl butynol
2560	<u>74-87-3</u>	Methyl chloride
2570	<u>108-87-2</u>	Methyl cyclohexane
2590	<u>1331-22-2</u>	Methyl cyclohexanone
2620	<u>75-09-2</u>	Methylene chloride
2630	<u>101-77-9</u>	Methylene dianiline
2635	<u>101-68-8</u>	Methylene diphenyl diisocyanate
2640	<u>78-93-3</u>	Methyl ethyl ketone
2644	<u>107-31-3</u>	Methyl formate
2650	<u>108-11-2</u>	Methyl isobutyl carbinol
2660	<u>108-10-1</u>	Methyl isobutyl ketone
2665	<u>80-62-6</u>	Methyl methacrylate
2670	<u>77-75-8</u>	Methyl pentynol <u>Methylpentynol</u>
2690	<u>98-83-9</u>	a-methyistyrene
2700	<u>110-91-8</u>	Morpholine
2710	<u>85-47-2</u>	a-naphthalene sulfonic acid
2720	<u>120-18-3</u>	B-naphthalene sulfonic acid
2730	<u>90-15-3</u>	a-naphthol
2740	<u>135-19-3</u>	B-naphthol
2750	<u>75-98-9</u>	Neopentanoic acid
2756	<u>88-74-4</u>	o-nitroaniline
2757	<u>100-01-6</u>	p-nitroaniline
2760	<u>91-23-6</u>	o-nitroanisole
2762	<u>100-17-4</u>	p-nitroanisole
2770	<u>98-95-3</u>	Nitrobenzene
2780	<u>27178-83-2c</u>	Nitrobenzoic acid (o, m & p)
2790	<u>79-24-3</u>	Nitroethane
2791	<u>75-52-5</u>	Nitromethane
2792		<u>Nitrophenol</u>
	<u>88-75-5</u>	<u>2-Nitrophenol</u>

2795	<u>25322-01-4</u>	Nitropropane
2800	<u>1321-12-6</u>	Nitrotoluene
2810	<u>27215-95-8</u>	Nonene
2820	<u>25154-52-3</u>	Nonyl phenol <u>Nonylphenol</u>
2830	<u>27193-28-8</u>	Octyl phenol <u>Octylphenol</u>
2840	<u>123-63-7</u>	Paraldehyde
2850	<u>115-77-5</u>	Pentaerythritol
2851	<u>109-66-0</u>	n-pentane
2855	<u>109-67-1</u>	1-pentene
2860	<u>127-18-4</u>	Perchloroethylene
2882	<u>594-42-3</u>	Perchloromethyl mercaptan <u>Perchloromethyl mercaptan</u>
2890	<u>94-70-2</u>	o-phenetidine
2900	<u>156-43-4</u>	p-phenetidine
2910	<u>108-95-2</u>	Phenol
2920	<u>98-67-9,</u> <u>585-38-6,</u> <u>609-46-1,</u> <u>133-39-7c</u>	Phenolsulfonic acids
2930	<u>91-40-7</u>	Phenyl anthranilic acid
2940	(b) <u>75-44-5</u>	Phenylenediamine
2960	<u>85-44-9</u>	Phosgene
2970	<u>85-41-6</u>	Phthalic anhydride
2973	<u>108-99-6</u>	Phthalimide
2976	<u>110-85-0</u>	sb -picoline
3000	<u>9003-29-6,</u> <u>25036-29-7c</u>	Piperazine
3010	<u>25322-68-3</u>	Polybutenes
3025	<u>25322-69-4</u>	Polyethylene glycol
3063	<u>123-38-6</u>	Polypropylene glycol
3066	<u>79-09-4</u>	Propionaldehyde <u>Propionaldehyde</u>
3070	<u>71-23-8</u>	Propionic acid
3075	<u>107-10-8</u>	n-propyl alcohol
3080	<u>540-54-5</u>	Propylamine
3090	<u>115-07-1</u>	Propyl chloride
3100	<u>127-00-4</u>	Propylene
3110	<u>78-87-5</u>	Propylene chlorohydrin
3111	<u>57-55-6</u>	Propylene dichloride
3120	<u>75-56-9</u>	Propylene glycol
3130	<u>110-86-1</u>	Propylene oxide
3140	<u>106-51-4</u>	Pyridine
3150	<u>108-46-3</u>	Quinone
3160	<u>27138-57-4</u>	Resorcinol
3170	<u>69-72-7</u>	Resorcylic acid
3180	<u>127-09-3</u>	Salicylic acid
3181	<u>532-32-1</u>	Sodium acetate
3190	<u>9004-32-4</u>	Sodium benzoate
3191	<u>3926-62-3</u>	Sodium carboxymethylcellulose <u>carboxymethyl cellulose</u>
3200	<u>141-53-7</u>	Sodium chloroacetate
3210	<u>139-02-6</u>	Sodium formate
		Sodium phenate

3220	<u>110-44-1</u>	Sorbic acid
3230	<u>100-42-5</u>	Styrene
3240	<u>110-15-6</u>	Succinic acid
3250	<u>110-61-2</u>	Succinitrile
3251	<u>121-57-3</u>	Sulfanilic acid
3260	<u>126-33-0</u>	Sulfolane
3270	<u>1401-55-4</u>	Tannic acid
3280	<u>100-21-0</u>	Terephthalic acid
3290 & 3291	<u>79-34-5c</u>	Tetrachloroethanes
3300	<u>117-08-8</u>	Tetrachlorophthalic anhydride
3310	<u>78-00-2</u>	Tetraethyl lead <u>Tetraethyl lead</u>
3320	<u>119-64-2</u>	Tetrahydronaphthalene
3330	<u>85-43-8</u>	Tetrahydrophthalic anhydride
3335	<u>75-74-1</u>	Tetramethyl lead <u>Tetramethyl lead</u>
3340	<u>110-60-1</u>	Tetramethylenediamine
3341	<u>110-18-9</u>	Tetramethylethylenediamine
3349	<u>108-88-3</u>	Toluene
3350	<u>95-80-7</u>	Toluene-2,4-diamine
3354	<u>584-84-9</u>	Toluene-2,4-diisocyanate
3355	<u>26471-62-5</u>	Toluene diisocyanates (mixture)
3360	<u>1333-07-9</u>	Toluene sulfonamide
3370	<u>104-15-4c</u>	Toluene sulfonic <u>Toluenesulfonic acids</u>
3380	<u>98-59-9</u>	Toluene sulfonylchloride <u>sulfonyl chloride</u>
3381, 3390 & 3391	<u>26915-12-8</u>	<u>Toluidines</u>
3393	<u>87-61-6,</u> <u>108-70-3,</u> <u>120-82-1c</u>	Trichlorobenzenes
3395	<u>71-55-6</u>	1,1,1-trichloroethane
3400	<u>79-00-5</u>	1,1,2-trichloroethane
3410	<u>79-01-6</u>	Trichloroethylene
3411	<u>75-69-4</u>	Trichlorofluoromethane
3420	<u>96-18-4</u>	1,2,3-trichloropropane
3430	<u>76-13-1</u>	1,1,2-trichloro- 1, 1,2,2-trifluoroethane
3450	<u>121-44-8</u>	Triethylamine
3460	<u>112-27-6</u>	Triethylene glycol
3470	<u>112-49-2</u>	Triethylene glycol glycol <u>dimethyl glycol dimethyl ether</u>
3480	<u>7756-94-7</u>	Triisobutylene
3490	<u>75-50-3</u> <u>57-13-6</u>	Trimethylamine Urea
3510	<u>108-05-4</u>	Vinyl acetate
3520	<u>75-01-4</u>	Vinyl chloride
3530	<u>75-35-4</u>	Vinylidene chloride
3540	<u>25013-15-4</u>	Vinyl toluene
3541	<u>1330-20-7</u>	Xylenes (mixed)
3560	<u>95-47-6</u>	o-xylene
3570	<u>106-42-3</u>	p-xylene
3580	<u>1300-71-6</u>	Xylenol

3590	<u>1300-73-8</u>	Xylidine
	(b)	methylterbutyl <u>methyl tert</u>
	<u>9002-88-4</u>	<u>-butyl ether</u>
	(b)	Polyethylene
	<u>9009-53-6</u>	Polypropylene
		Polystyrene

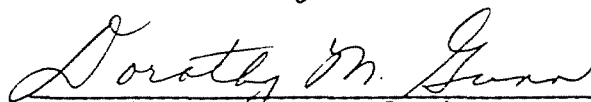
* The OCPDB numbers are reference indices assigned to the various chemicals in the Organic Chemical Producers Data Base developed by the USEPA.

- a) CAS numbers refer to the Chemical Abstracts Registry numbers assigned to specific chemicals, isomers or mixtures of chemicals. Some isomers or mixtures that are covered by the standards do not have CAS numbers assigned to them. The standards apply to all of the chemicals listed, whether CAS numbers have been assigned or not.
- b) No CAS number(s) have been assigned to this chemical, to its isomers, or mixtures containing these chemicals.
- c) CAS numbers for some of the isomers are listed: the standards apply to all of the isomers and mixtures, even if CAS numbers have not been assigned.

(Source: Amended at ____ Ill. Reg. _____, effective _____)

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 23rd day of February, 1989 by a vote of 7-0.



 Dorothy M. Gunn, Clerk
 Illinois Pollution Control Board