

United States
Environmental Protection Agency
Office of Pesticides and Toxic Substances
Chemical Control Division

RESPONSE TO PUBLIC COMMENTS DOCUMENT

for the Rulemaking Process Concerning

ASBESTOS; MANUFACTURE, IMPORTATION,
PROCESSING, AND DISTRIBUTION IN COMMERCE
PROHIBITIONS
OPTS - 62036

June 27, 1989

ST0278936

L: ASBESTOS DIAPHRAGMS

COMMENT 1: LIFE CYCLE RISK POSED BY ASBESTOS DIAPHRAGMS. A number of comments were received stating that asbestos exposure occurring during the life cycle of asbestos diaphragms does not pose an unreasonable risk to either workers or the public. One of these commenters claimed that "the regulations, as they apply to chlorine manufacture, are not warranted on scientific grounds" since chlor-alkali workers receive only minimal exposure to asbestos. Another commenter asserted that banning asbestos in the chlor-alkali industry would not result in significant health benefits. A third commenter agreed with the other two, claiming that "the risk is not significant" since few people are exposed, very little asbestos is used, and the ambient releases are minimal. [Vulcan Chemicals pp. 5-7; Diamond Shamrock pg. 3; Georgia Gulf pg. 2; Occidental pg. 1; Chlorine Institute pg. 5; PPG Industries pp. 3-4; Dow pg. 3; Olin pg. 3;]

In a 1988 comment, one commenter stated that $\frac{3}{4}$ of the domestically produced sodium hydroxide comes from asbestos diaphragm cell plants, which results in public exposure to asbestos. This commenter alleges that this sodium hydroxide, which may be used as a direct food additive for neutralization purposes and for "lye-peeling" of a variety of processed fruits and vegetables, is heavily contaminated with asbestos. [NRDC]

RESPONSE: EPA is not banning asbestos diaphragms in this rule. Based on current information, the Agency agrees with those

comments that asbestos diaphragms do not pose an unreasonable risk over the product life cycle.

EPA has not determined the level of exposure resulting from the use of asbestos-contaminated sodium hydroxide, as a direct food additive for neutralization purposes and for "lye-peeling" of a variety of processed fruits and vegetables. EPA has also not determined whether asbestos diaphragms are the source of the asbestos in sodium hydroxide. For further discussion concerning asbestos diaphragms, refer to Unit V.G.1.iii of the Preamble.

§ 24.500

COMMENT 2: RESPONSIBILITY OF EPA TO REGULATE ASBESTOS DIAPHRAGMS. One commenter stated that the chlorine industry's past contention that exposures from chlor-alkali asbestos diaphragms should be permitted absent more definitive proof that ingested asbestos causes cancer in humans is not acceptable. This commenter claims that the failure of FDA to regulate this source of public exposure is not indicative of the safety of the practice but rather of the need for a comprehensive EPA ban in lieu of several federal agency proceedings to safeguard the public health from asbestos. [NRDC pg. 8]

RESPONSE: EPA will not be banning asbestos diaphragms as part of this rulemaking. Based on current information EPA has not been able to determine that asbestos diaphragms present an unreasonable risk. EPA analysis indicates that banning asbestos diaphragms will avoid relatively few cancer cases, while increasing the total cost of the rule substantially.

COMMENT 3: ESTIMATION OF THE COST-BENEFIT OF BANNING ASBESTOS DIAPHRAGMS. Numerous commenters asserted that banning asbestos diaphragms would be very costly. In 1986 comments, most commenters claimed that converting to membrane technology from the asbestos diaphragm technology would require scrapping large amounts of capital equipment. Many commenters stated that this would not be economically feasible and alleged that the ban would result in plant shutdowns. It was asserted that this would lead to an increase in the importation of chlorine and goods utilizing chlorine in their manufacture. Several commenters estimated that retrofitting existing asbestos diaphragm cells to accept membrane technology, which has not yet been proven possible, would cost about \$1 billion. A number of commenters also estimated that to convert the entire U.S. diaphragm cell productive capacity to membrane technology would cost over \$2 billion. One commenter stated that "a conversion to membrane technology would disrupt the current cogeneration operations in the chlor-alkali facilities and discourage future considerations for installing these energy efficient facilities." A few commenters asserted that a ban on asbestos use in chlor-alkali would be self-defeating since many asbestos substitutes (such as PVC, aluminum and wood composites) require chlorine or caustic in their manufacture. [Dow Chemical pp. 2, 24-26, 29-31, 34; Chlorine Institute pp. 31-32; Georgia Gulf pg. 2; Occidental Chemical pp. 1-2]

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In the 1988 comments, two commenters claimed that banning asbestos diaphragms would result in a minimal benefit in terms of reduced cancers at an extremely high cost. One of these commenters alleged that only a small portion (0.1%) of the rule's total estimated cancer cases avoided would result from a ban of asbestos use for diaphragms, while banning this product would represent approximately 31% of the total cost of the rule. [Chlorine Institute pp. 2, 6; VC]

RESPONSE: EPA agrees with the commenters that banning asbestos diaphragms would be very costly and could possibly disrupt the production of some asbestos substitutes (USEPA 1988 RIA). Exposure to asbestos during the life cycle of this product is limited because the product is generally fabricated on site, used saturated with solution, and disposed of while wet. Asbestos is not prone to be released into the ambient air during stages after product fabrication. Asbestos diaphragms are not banned by this rule because EPA has not concluded that the product presents an unreasonable risk, based on current information. For further discussion concerning asbestos diaphragms, refer to Unit V.G.1.iii of the Preamble.

COMMENT 4: DOMESTIC EFFECTS OF BANNING ASBESTOS DIAPHRAGMS. One commenter stated that the continued use of asbestos diaphragms is necessary for the U.S. chlorine/caustic soda producers to remain competitive in the world markets. [VC]

RESPONSE: EPA believes that banning asbestos diaphragms would

be very costly and could disrupt the production of some asbestos substitutes (USEPA 1988 RIA). Exposure to asbestos during the life cycle of this product is limited because the product is generally fabricated on site, used saturated with solution, and disposed of while wet. Asbestos is not likely to be released into the ambient air during stages of the life cycle of asbestos diaphragms after product fabrication. EPA will not be banning asbestos diaphragms as part of this rulemaking.

COMMENT 5: AVAILABILITY OF SUITABLE SUBSTITUTES FOR ASBESTOS' DIAPHRAGMS. In 1986 comments, several commenters claimed that there are no substitutes for asbestos diaphragms which can be applied to existing cells. Many commenters asserted that only two alternatives exist to asbestos diaphragms: either to extensively modify existing equipment to accept membrane technology, an unproven process which one commenter claims will not work in some facilities; or to abandon the investment in present cells and install new cells that are designed to use membranes. Several commenters considered membrane cells to possibly be economical at a proper location when a new plant is built. One commenter cited the lack of available substitutes while requesting a permanent exemption from the proposed asbestos ban. [Chlorine Institute pp. 2, 23-24; Occidental Chemical pp. 1-2; Dow Chemical pp. 29-31, 2, 25-26, 34; Vulcan Chemicals pp. 4-5; Diamond Shamrock pg. 3; PPG Industries pp. 3-4]

In a 1988 comment, one commenter felt that an acceptable

substitute for asbestos diaphragms that will not require either the converting or scrapping of capital equipment is now available. This commenter claimed that sufficient full-size testing has been completed on PMX(TM) to state that it should be considered as an acceptable substitute "suitable for replacing diaphragms in electrolytic cells." The commenter also claimed that this new technology would cost only \$146.6 million over a 10-year time frame as opposed to \$2 billion capital conversion cost to membrane cell. [OXYTECH]

Another commenter expressed concern as to the suitability of PMX to all chlorine manufacturers and claimed that this product has been tested in a very limited number of cells and tested for short time periods. The commenter also stated that PMX could be three or more times more costly than estimated by the other commenter. [DOW]

RESPONSE: Insufficient information has been provided to EPA to support the notion that suitable substitutes are available for use in existing asbestos diaphragm cells (USEPA 1988 RIA). EPA considers PMX to be a possible future substitute for asbestos diaphragm cells which needs further development in commercial plant operation to determine its effectiveness and cost. If the cost estimate provided by the commenter for replacing asbestos diaphragms with PMX of \$146.6 million over 10 years is accurate, then this option would still appear relatively expensive in light of the relatively low level of exposure that occurs during the life cycle of asbestos diaphragms used in chlor-alkali

facilities. Based on current information, EPA also considers a retrofitting of existing chlor-alkali facilities to membrane technology to be technically difficult and economically infeasible.

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