

DRAFT

UNCLASSIFIED

**EVALUATION OF ASBESTOS ALTERNATIVES
AS AN ENVIRONMENTAL ATTRIBUTE FOR
INCLUSION IN THE FEDERAL LOGISTICS
INFORMATION SYSTEM (FLIS)**

M.C. Bracken
E.T. Morehouse

NOVEMBER 2002

This draft is still undergoing review and is subject to modification or withdrawal from publication. No reference should be made to this document in other publications.

INSTITUTE FOR DEFENSE ANALYSES
4850 Mark Center Drive, Alexandria, VA 22311-1882

UNCLASSIFIED

DRAFT

CONTENTS

A. INTRODUCTION	1
B. STUDY APPROACH.....	2
C. FEDERAL AND REGULATORY POLICY	3
D. DEFINITION OF NON-ASBESTOS ALTERNATIVES.....	4
E. COST BENEFIT.....	5
F. IMPLEMENTATION OF ASBESTOS ALTERNATIVE PRODUCTS AS AN ENVIRONMENTAL ATTRIBUTE	5
G. SUMMARY AND CONCLUSIONS	6

A. INTRODUCTION

In 1993, President Clinton issued Executive Order 12873, *Federal Acquisition, Recycling, and Waste Prevention* that requires the Environmental Protection Agency (EPA) “to issue guidance that recommends principles that Executive Agencies should use in making determinations for the preference and purchase of environmentally preferable products.” Executive Order 13101-*Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*, published in September 1998, requires government agencies to improve their use of recycled products and environmentally preferred products (EPP). “Environmental preferable” is defined in Section 201 of EO 13101 to mean products or services that “have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance or disposal of the product or service.” As a major buyer of products for the military Services, the Defense Logistics Agency (DLA) is responsible for improving the Department of Defense’s (DoD’s) use of EPPs that reduce life cycle costs.

In February 1997, the Joint Logistics Commanders (JLCs) tasked DLA to research the feasibility of developing a program to integrate environmental attributes into the Federal Logistics Information System (FLIS), a computerized database of more than 7 million supply items purchased by the government. The purpose is to aid procurement personnel and end users to identify products with positive environmental attributes. DLA established the Environmental Attribute Initiative and formed the Joint Group on Environmental Attributes (JG-EnvAtt) Coordinating Committee to manage the activity. DLA heads the JG-EnvATT Coordinating Committee, with the Army, Navy, Air Force, Marine Corps, and the General Services Agency (GSA) as the primary participants. Advisors include the Department of Energy, the Environmental Protection Agency, and other government agencies. The Committee is responsible for selecting, evaluating, and approving proposed attributes for inclusion into FLIS.

To date, the Committee has approved four attributes for inclusion into the FLIS. They are:

- Low volatile organic compound (VOC) content,
- Energy efficiency,
- Water conservation, and

- Items designated by the Comprehensive Procurement Guidelines (CPG) as defined by the Environmental Protection Agency

The Environment and Safety Directorate of the Defense Logistics Agency tasked the Institute for Defense Analyses to evaluate “asbestos alternatives products” as an environmental attribute for inclusion in FLIS. The objectives of the study are to:

- Determine whether “asbestos alternative or non-asbestos” products meets the criteria as an environmental attribute
- Determine a procedure for recognizing and identifying non-asbestos products
- Determine a means for identifying non-asbestos products in FLIS and implementing them

B. STUDY APPROACH

The JG-EntAtt Coordinating Committee developed the following three selection criteria for evaluating proposed attributes:

- Regulatory or policy priority must exist
- Clearly definable comprehensive definition must be available
- Cost benefit must be evident

Following this guidance, the IDA team evaluated existing federal and regulatory policy to determine if a policy priority existed to consider asbestos as an environmental attribute. Meetings were held with the Environmental Protection Agency to assess their position on asbestos alternative products as an environmental attribute. Meetings were held with the Defense Logistics Supply Center in Philadelphia (DSCP), specifically the General & Industrial Business Office, which is inventory control point for asbestos alternative products that is working on a program sponsored by the Navy to develop alternatives to asbestos containing products and their contractor, BBN Technologies, who assisted in the program. Discussions were held with the analytical laboratory that performed the asbestos analyses and with the American Society for Testing and Materials (ASTM) Asbestos Subcommittee that has developed test methods for a wide range of asbestos products. Meetings were held in Battle Creek, Michigan with the persons responsible for EPRO, EMALL, and FLIS cataloging requirements to determine whether the DSCP database of asbestos alternative products could be entered into FLIS.

C. FEDERAL AND REGULATORY POLICY

Asbestos is a name give to naturally occurring fibrous silicate mineral that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are 1) chrysotile, b) amosite and c) crocidolite. Chrysotile is the most commonly found. Asbestos is made up of microscopic bundles of fibers that may become airborne when distributed. These fibers get into the air and may become inhaled into the lungs, where they may cause significant health problems. Health problems include: Asbestosis, which is a lung disease, frequently found in naval shipyard workers. Mesothelioma is a cancer of the outer lining of the lung and is caused by asbestos exposure, as is lung cancer. Asbestos is not always an immediate hazard. If asbestos can be maintained in good condition it is recommended that it be left alone and periodic surveillance be performed to monitor its condition. It is only when asbestos containing materials (ACM) are disturbed or the materials separate and become airborne that it becomes a hazard. The term “friable” is used to describe asbestos that can be reduced to dust by hand pressure and may become airborne and inhaled into the lungs, which may cause significant health problems.

OSHA promulgated final standards for occupational exposure to asbestos in general industry (Title 29 CFR 1919.1001) and the construction industry (Title 29 CFR 1926, 1101) and provided a separate standard covering occupational exposure to asbestos for the shipyard industry (Title 29 CFR1915.1001). OSHA asbestos standards seek to ensure that workers exposed to asbestos are protected from adverse health effects by specifying occupational exposure limits, and hazard communication requirements. The Clean Air Act requires EPA to develop and enforce regulations to protect the public from exposure to airborne contaminants. EPA establishes National Emission Standards (NESHASPS) and promulgated the Asbestos NESHAPS in 1973 that requires procedures to control emissions of asbestos during demolition.

EPA issued the Asbestos-in Schools Rule that mandates control of asbestos in schools under the Toxics Substances Control Act (TSCA). This rule is founded on the principles of “in-place” management of ACM. This approach is designed to keep asbestos fiber levels low by teaching people to recognizing asbestos containing materials and actively managing them. Also under the authority of TSCA, EPA attempted to prohibit the manufacture, importation, processing and distribution in commerce certain asbestos containing products in the “Asbestos Ban and Phaseout Rule.” In July 1989 the

EPA rule was remanded and much of the original ban on U.S. manufacturing, importation and processing did not take effect. Some products still banned include corrugated paper, rollboard, commercial paper, specialty paper, flooring felt and new uses of asbestos. In general, the EPA's major asbestos regulations were promulgated under the Toxics Substance Control and the Clean Air Act. For a complete list of Asbestos regulations, see www.EPA.gov/opptintr/asbestos/asbreg.htm. There is sufficient evidence documenting the health hazards associated with the exposure of asbestos and sufficient regulatory framework in place to justify consideration on asbestos-alternatives as environmental attribute. It is important to note that the use of asbestos products in the U. S. has declined. Manufacturers have modified product design and substituted or eliminated the need for asbestos.

D. DEFINITION OF NON-ASBESTOS ALTERNATIVES

Asbestos-containing materials (ACM) when referring to school buildings means any material or product which contains more than 1 % percent of asbestos (Title 40 CFR 763, Subpart E). The November 1990 revised asbestos NESHAP prohibits spray-on application of materials containing more than 1% asbestos. Subpart H of 40 CFR 763.163 –Prohibition of Manufacture, Importation, Processing, and Distribution in Commerce of Certain Asbestos-Containing Products defines asbestos containing products as any product to which asbestos is deliberately added in any concentration or which contains more than 1 percent asbestos by weight or area. It follows that an asbestos alternative or non-asbestos containing product cannot have more than 1% asbestos. The presence of asbestos in products and bulk material is determined using EPA recommended laboratory methods 1) Bulk Sample Analyses for Asbestos Content: Evaluation of the Tentative Method (40 CFR 763 Subpart E) and 2) EPA /600/R-93/116, Method for the Determination of Asbestos in Bulk Building Materials, June 1993. ASTM also publishes test methods for analysis of asbestos content of asbestos materials. (See ASTM web site at www.astm.org).

The following definition of asbestos alternative products for the purposes of defining an environmental attribute definition is as follows:

An Asbestos Alternative Product for use as an Environmental Activity Code is a product that is a replacements for a product previously containing asbestos that contain less than 1.0 percent asbestos by weight or area (as determined using EPA Test method

as published in Appendix –E 40 CFR 763.163, Subpart E or equivalent ASTM Test Method).

E. COST BENEFIT

The wastes of asbestos containing products and debris from renovations and demolitions require disposal in licensed landfills or other approved disposal sites. Increasingly military specifications for products that use to contain asbestos are requiring environmentally preferable material that does not contain asbestos. See for example Performance Specifications for Gasket, Diesel Exhaust (MIL-PRF-XX376). These specifications require that material have no adverse health effects. According to the DSCP the costs of inventorying and disposal of products with asbestos that have been removed from use by the military are mounting. Record keeping costs imposed by 40 CFR 763.163 and 763.167 require an inventory of the stock-on-hand of each banned product for the applicable activity, its location and the person performing the inventory. Results must be maintained for three years.

It is clear that moving towards the use of asbestos alternative products will reduce life cycle costs. EPA has established asbestos disposal requirements under NESHAPS and specific requirements under RCRA. In addition, many states are requiring more stringent handling procedures, all increasing the waste management costs. Personnel handling asbestos must receive specialized training and wear appropriate protective gear. Guidance from the Services indicates that use of asbestos containing materials is not an option unless specific requirements for thermal insulation, etc. in a weapon system require its use. Moving towards replacement of products from the DLA system will be a cost savings to the Department and reduce waste management and inventory control costs.

F. IMPLEMENTATION OF ASBESTOS ALTERNATIVE PRODUCTS AS AN ENVIRONMENTAL ATTRIBUTE

Asbestos can be found in a large number of materials. Region 6, Multimedia Planning and Permitting Division of EPA, provides a list of suspect asbestos containing materials (Table 1). Some of these products may not be of concern to DoD buyers or may not be handled by DLA supply centers. This list does not include every

product/material that may contain asbestos, but is intended as a guide to show which type of materials may contain asbestos.

TABLE 1. SAMPLE LIST OF SUSPECT ASBESTOS-CONTAINING MATERIALS

Cement Wall Board and Siding	Wallboard
Asphalt Floor Tile	Fire Blankets and Curtains
Vinyl Floor Tile and Sheet Flooring	Elevator Brake Shoes
Construction Mastics	HVAC Duct Insulation
Acoustical Plaster	Cooling Towers
Ceiling Tiles and Lay-in Panels	Pipe Insulation
Blown-in Insulation	Roofing Shingles
Fireproofing Materials	Fire Doors
Packing Materials	Chalk Boards
Laboratory Gloves	Roofing Felt
Vinyl Wall Coverings	Adhesives
Gaskets	

The Air Force has established a framework for asbestos management and maintains a list of over 46 suspect ACM and advises buyer and those making procurement decisions to avoid purchasing products with asbestos unless there is a requirement which can justify the use of asbestos.

The Navy has sponsored a program with support from the Defense Supply Center Philadelphia (DSCP). They have tested over 9000 previously identified National Stock Numbers (NSNs) and identified 4000 replacement NSNs. Products were tested for the presence of asbestos using EPA Test Method for Determination of Asbestos as published in Appendix E –40CFR 763.163, Subpart E. DSCP has compiled a database of 4000 asbestos replacement products with new NSNs. This database has been examined by DLIS and these replacement products can be readily entered into FLIS as “green products” assuming approval of asbestos alternative products as an environmental attribute. Additional asbestos alternative products have been identified by other DLA. Supply centers. In some cases, asbestos replacement compounds have been identified and been given existing NSNs. This creates a problem in that some of the products with the NSN contain asbestos. These products cannot be listed in FLIS until they have been given new NSNs or another alternative solution is provided. For commodity products,

DLA buyers will need to rely on vendors to provide information regarding the asbestos content of their products.

G. SUMMARY AND CONCLUSIONS

The JG-EnvAtt Coordinating Committee's criteria for adding additional environmental attributes to FLIS are that they can be determined to be a policy priority, be clearly definable and show a life-cycle cost benefit. Removal of asbestos and use of alternative products is supported by numerous Federal regulations including regulations under the Toxic Substances Control Act and the Clean Air Act. **The definition of asbestos alternatives is taken from the definition of asbestos-containing materials as defined in the Clean Air Act NESHAP 40 CFR 763, Subpart E, 1990 and Subpart H of 763.163 Prohibition of Manufacture, Importation, Processing and Distribution in Commerce of Certain Asbestos-Containing Products. The definition of Asbestos Alternative Products for use as an Environmental Activity Code is a product that is a replacement for a product previously containing asbestos that contain less than 1.0 percent asbestos by weight or area (as determined using EPA Test method as published in Appendix –E 40 CFR 763.163, Subpart E or equivalent ASTM Test Method).**

Elimination of asbestos from products will reduce waste management costs, require less pollution prevention and inventory control costs maintaining and storing asbestos containing materials. Implementation of asbestos alternative compounds into the FLIS system of the replacement products identified and in the DSCP database provides no difficulties for the DLIS staff. There are some barriers of entry into FLIS for products that are replacement compounds that have the same NSN as products containing asbestos. These will need to be addressed. IDA recommends that the JG-EnvAtt Coordinating approve "asbestos alternative products" as an environmental attribute and that DLIS give priority to entering the DSCP database into FLIS.

Furthermore it is recommended that DLA prepare a press release announcing the new environmental attribute, that Inventory Control Points inform vendors of their interest in other asbestos alternative/replacement products, and that announcements be

made at upcoming conferences and seminars of DoD interest in expanding the purchase of environmentally preferable products.