

EXECUTIVE SUMMARY

CARCINOGENS IN THE WORKPLACE

Introduction

The Task Force on Carcinogens in the Workplace was established by the Engineering and Research and Manufacturing and Supply Subcommittees to identify carcinogens and quantities in use, set targets for elimination ahead of regulation, take steps to find substitutes, develop a directive and workplan and organize to identify substances systematically. The Task Force assignment responded to evidence that cancer may be a serious occupational concern and to the Company's and public concern with regard to protection of the environment and public health. Additionally, the Company has been subjected to a growing number of laws which regulate material use, transport, handling and disposal. In summary, internal and external pressures regarding hazardous substance control and compliance have increased substantially since March, 1977, when Directive B-101 assigned responsibilities within the Company.

Past Company Actions

Since 1977, the Company has removed lead chromates and molybdates from paint (except special order), "Tris" flame retardant from fabrics and instituted controls on asbestos, including a Vehicle Engineering directive that newly designed components should not contain asbestos (documented exceptions must be encapsulated or resin coated).

Sprayed-on fireproofing has been asbestos-free since 1969 for new and reworked construction. Several manufacturing standards prohibit asbestos as a constituent. Benzene exposure has been reduced or eliminated at San Jose and Central Laboratories since 1978. Ventilation was increased at Romeo to minimize hazards from paint-related chromium compounds.

Carcinogenic Substances

The Task Force has identified sixty-seven (67) carcinogens in use in the automotive industry. Twenty-six (26) of those are currently regulated by OSHA; the balance have been proposed for new regulation. More restrictive standards have been proposed for some of those substances currently regulated. Thirty-one (31) substances are reported to the Michigan Department of Natural Resources for computation of water surveillance fees. Michigan plants used 1.3 million pounds of the twelve (12) carcinogens on the MDNR list. The largest use was 641 thousand pounds of acrylonitrile at the PPV Paint Plant. Similar data is not currently required to be reported in the other states. The list of carcinogens was prioritized by the Task Force according to impact on the Company to identify the top eight (8). The top three of the eight-priority substances, asbestos, chromium compounds and benzene, were examined in detail.

Asbestos is used by the Company primarily in vehicle brakes, clutches, gaskets and for nonproduction roofing, millboard and core/mold-making materials. Medical evidence links inhalation of asbestos dust to lung cancer, mesothelioma and other diseases. The present OSHA limit is 2 fibers per cc of air (2 million fibers per cubic meter) which is proposed to be reduced to 0.1 f/cc as early as this year.

Chromium compounds are used primarily in paints and inks for production and nonproduction use. Medical evidence links hexavalent chromium compounds to lung cancer, liver and kidney damage and other diseases. The present OSHA limit is 52 mg per m³ of air which is proposed to be reduced to 1 mg/m³.

Benzene occurs primarily in coke oven operations as a by-product. It is a residual constituent of solvents, primers, adhesives, lubricating oils, fuels and hydraulic fluids. Medical evidence links inhalation and contact with benzene to leukemia, blood disorders and other diseases. OSHA has proposed a limit of 1 ppm in air time weighted average in 8 hours.

Specific lists of bulk materials and parts for production and nonproduction use have been developed. A new computer data base is being developed, Materials and Toxicology System (MATS), which links health, engineering, and manufacturing data bases to facilitate rapid identification of carcinogen applications (2nd quarter 1981). The engineering release system has been audited and is being updated to extend materials identification to all parts. Product Engineering Procedure PEP 3-189 has been rewritten to require systematic review of suspect carcinogens and input to the data base.

Based on an assessment of likelihood of further regulatory controls:

Strategy and Workplan

The search for asbestos, chromium compounds and benzene defined the number of part materials containing these substances as listed in the table below. Where possible, the applications were divided into three groups: A - Known substitute material without major redesign, B - Known substitute material with major redesign and C - No known substitute or advanced engineering required. The data is directional only. There remain many suspect applications which require time-consuming analyses for identification.

Bulk Materials and Parts

	Production				Nonproduction			
	A	B	C	Total	A	B	C	Total
Asbestos	34	49	22	105	8	-	-	8
Chromium Compounds	-	-	25	25	98	81	34	213
Benzene	-	-	15	15	3	-	5	8

Strategies have been formulated to eliminate or control these substances. The recommended strategy is to proceed now to eliminate these three carcinogens by Job #1, 1985; in light of competitive and regulatory pressures, and Company experience. Where elimination cannot be contained, institute controls on design, process and exposure. It is judged that the elimination timetable is practical for Group A asbestos, chromium compounds and benzene-containing parts and materials. For those applications requiring major redesign (Group B, e.g., drum brake linings) the elimination timetable would have to be adjusted to reflect Company cycle plans although G.M. has stated an intent to eliminate asbestos by 1985. Finally, where no known substitute exists (Group C), advanced engineering will have to be completed before a elimination timetable can be established.

A generalized workplan has been prepared on the basis of the evaluation of the carcinogens already referred to. The workplan requires central program management, with action implementation by NAAO/DPO Product Engineering Offices, Purchasing activities, Vehicle activities and the Manufacturing and Supply Staffs. It is judged that approximately a year is required to complete the sorting of the three carcinogens into the known substitute, major redesign and advanced project groups. It is judged that one additional year would be required to implement the most feasible product actions not requiring major redesign. Substitution requiring redesign would take 33 months for vehicle or major powertrain programs.

Recommendations

Achievement of the recommended strategy requires an integrated approach throughout the Company and a sustained effort over a number of years. The Task Force recommends:

1. Establish a Hazardous Substance Control Committee chaired by Environmental and Safety Engineering Staff. The Task Force would be discontinued.
2. Assign Carcinogen Program manager control responsibility to Environmental and Safety Engineering Staff.
3. Request Environmental and Safety Staff to establish carcinogen elimination timetables for the 67 known carcinogens for review and approval by the subcommittees. (The Task Force has requested General Managers and Chief Engineers to recommend directional timetables.)
4. Direct all affected organizations to proceed with the elimination of Group A asbestos, chromium compounds and benzene for Job #1, 1985.
5. Request that NAAO Product Engineering Offices and Manufacturing Staff present to the subcommittee specific action plans and timing for the Group A applications identified.
6. Provide advance program funding to develop designs and/or materials for new parts to identify reliability, cost and weight implications of alternative designs (Group C).
7. Adopt as the Company carcinogen listing the 67 current OSHA-regulated and proposed Category I substances. Establish the top eight priorities proposed by the Task Force as Company priorities.

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