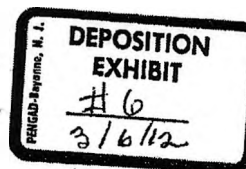


FILE NAME: Cummins Engine Co (CEC)

DATE: 1986 Feb 6

DOC#: CEC002

DOCUMENT DESCRIPTION: Unpublished Internal Report



PROJECT DESCRIPTION

February 6, 1986

PROJECT PURPOSE

The majority of our gasket materials contain asbestos fibers. Although these materials are considered the least hazardous form of asbestos, We need to react for the following reasons:

1. Gasket manufacturers will be increasing the cost of asbestos gasket materials to cover the increasing costs of liability insurance;
2. Removal and handling of gaskets in the field is not controlled;
3. General concern of the public.

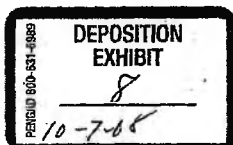
Currently, non-asbestos gasket materials are not equal to the performance and more costly than asbestos gaskets. Therefore, we must establish a policy on asbestos gaskets and a subsequent action plan.

SUCCESS OBJECTIVES

- Establish an asbestos gasket policy which outlines the timing and criteria for implementing non-asbestos gasket materials.
- Implement an action plan which is consistent with the asbestos gasket policy.
- Select non-asbestos gasket materials which will have the least (if any) impact on performance and cost.

ORGANIZATION (who is leading**/who is involved)

Greg Rieker (Polymer Engineering)**
Corporate Dry Engine Committee (Don Gregg)



CUMMINS003687

ACTION PLAN UPDATE

Date: February 6, 1986

<u>Key Work Elements</u>	<u>Completion Date</u>	<u>Prime Mover</u>	<u>Status</u>
<u>Asbestos Gasket Policy</u>			
1. Write asbestos gasket policy	Aug 85	D. Gregg	Y
2. Corporate approval of policy	Mar 86	D. Gregg	Y
<u>Action Plan</u>			
1. Material evaluation	Mar 86	G. Rieker	G
2. Application review/ mat'l recommendation	May 86	G. Rieker	G
3. Engine tests	Dec 86	G. Rieker	Y
4. Preproduction runs	2 Qtr 88	G. Rieker	Y
5. Final mat'l selection	Dec 86	G. Rieker	G
6. Release for production	July 87	G. Rieker	G
7. Release for service	Jan 88	G. Rieker	G

DOC 4705W

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PRESENT PERFORMANCE CORRELATION
OF ASBESTOS GASKETS VERSUS NONASBESTOS GASKETS

FUNCTIONAL LABORATORY TEST

EQUIVALENT

SWELL PRESSURE

YES

SEALABILITY

YES

COMPRESSIVE STRENGTH

NO, NONASBESTOS INFERIOR

CREEP RELAXATION

YES, NONASBESTOS BETTER
IN SOME INSTANCES

COMPRESSIBILITY/RECOVERY

YES

G.M. RIEKER
28 FEBRUARY 1986
DOC 4806W

CUMMINS003689

**COST IMPACT OF SWITCHOVER FROM
ASBESTOS TO NONASBESTOS GASKET MATERIALS**

<u>TYPE OF GASKET MATERIAL</u>	<u>NH ENGINE GASKET COST</u>	<u>ELIMINATION OF RETORQUE</u>
CURRENT PRODUCTION	\$14.08	SOME
EP ASBESTOS ACROSS THE BOARD	\$13.00	YES
NONASBESTOS EQUIVALENTS ACROSS THE BOARD	\$17.96	NO
EP NONASBESTOS ACROSS THE BOARD	\$27.30	YES

NOTE: ESTIMATE PRICE EQUIVALENCY IN 2-3 YEARS BETWEEN
ASBESTOS AND NONASBESTOS GASKETS

G.M. RIEKER
28 FEBRUARY 1986
DOC 4806W

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ASBESTOS/NON-ASBESTOS COST ANALYSIS

BASIS:

1. ASBESTOS GASKET VOLUMES BASED UPON INPUT FROM THREE MAJOR U.S. GASKET MATERIALS SUPPLIERS.
2. KEVLAR FIBER IS APPROXIMATELY 75% OF THE TOTAL NON-ASBESTOS MATERIAL COST
3. KEVLAR FIBER COSTS WILL BE INCREASING 10% PER YEAR PER DUPONT CHEMICAL (KEVLAR SUPPLIER).
4. ASBESTOS FIBER COST WILL REMAIN CONSTANT OVER NEXT FIVE YEARS.
5. OVERHEAD COSTS FOR ASBESTOS GASKETS WILL BE DOUBLING EACH YEAR BASED UPON DATA FROM SUPPLIERS.
6. CURRENT OVERHEAD COSTS FOR ASBESTOS GASKETS, WHICH INCLUDE LIABILITY INSURANCE, DISPOSAL AND PAPERWORK, AND CLEANLINESS ISSUES, IS ESTIMATED TO BE:
 - 5% OF 85 MATERIAL COST FOR MATERIAL SUPPLIER;
 - 10% OF 85 GASKET COST FOR GASKET SUPPLIER.

THE INFORMATION TO SUPPORT THE BASIS WAS A COMPOSITE OF DATA PROVIDED BY 3 GASKET MATERIAL SUPPLIERS AND 2 GASKET DIE CUTTERS DURING APRIL '86 CONVERSATIONS.

T.R.GALLANT

~~12 MAY 1986~~

DOC 5123W

CUMMINS003691

FIGURE 1
ASBESTOS GASKETS IN U.S. MARKET

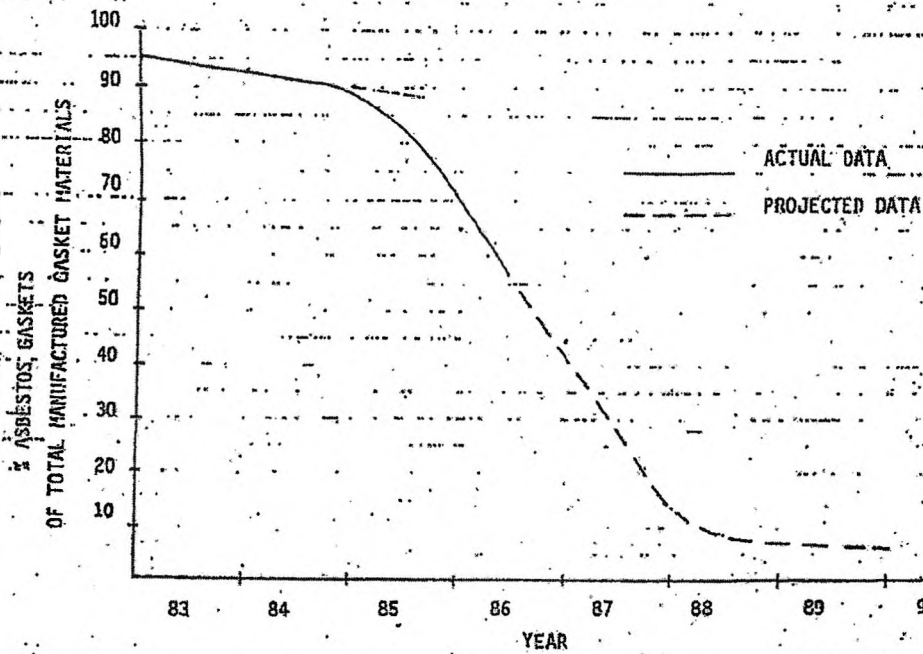


FIGURE 2
ASBESTOS VS. NON-ASBESTOS GASKET COSTS

