



Imo Delav
Delaval C
Front Str
Florence,
609-499-3000

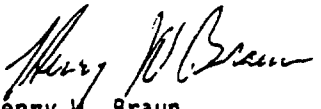
PLAINTIFF'S
EXHIBIT
IMO-122

MEMO

To: See Distribution
From: H. W. Braun
Date: July, 5, 1988
Subject: Corporate Technical Council Meeting

As a result of our Corporate Technical Council Meeting, I am taking the liberty to present an area of interest to us to the attendees I believe may have comparable interest. I've attached some of the results of our investigation, and if you have any information which might help us in our material application search, I would like to receive it.

It was, for me, a worthwhile experience, and getting to know people in our other Divisions is very helpful.


Henry W. Braun
Condenser Engineering Manager

HWB/ms

Attachment: Non Asbestos Gasket Material

Distribution: E. A. Bulanowski - R & A.P.D. & Turbine Div.
L. Fisher - Deltex
A. Gillette - Enterprise
H. Branch - Gems
J. Croto - Boston Gear
J. Brennan - IMO Pump
C. Mathews - Enterprise
C. Cannon - Wiggins

TX0357



Imo Delaval Inc
Delaval Condenser Division
Front Street
Florence, NJ 08515
609-499-3000

NON ASBESTOS GASKET USE

Information exchange desired. Condenser Division, in accordance with invoked Military Specification and prior general practice, had used compressed asbestos sheet gaskets generally 1/32", 1/16" or 1/8" thick.

Although asbestos gasket material completely contains the asbestos fibers, the increasing awareness of customers and the general population of a possible health hazard led us to eliminate the use of asbestos gasket material on commercial applications. On these applications we generated the attached Engineering Memo #55.

We have also generated a number of requests to the Navy requesting them to generate an alternate material specification to the HH-P-46E Specification which was invoked in our product specifications.

We have been made aware that the Navy has issued Mil-G-24696, and several suppliers are attempting to have products qualified. Our correspondence with them is attached for your reference.

A handwritten signature in cursive script, reading "Henry M. Braun". The ink is dark and the signature is fluid.

Henry M. Braun
Condenser Engineering Manager

HWB/ms

TX0358

ENGINEERING MEMO E-55

October 1, 1985

GASKET MATERIALS AND DRAWINGS

Compressed asbestos gasket material is difficult to obtain commercially (and is becoming more so) since just about all sources (at least in the U.S.A.) have curtailed or discontinued its manufacture. Several excellent substitutes for the sheet asbestos gasket material have been developed and are available commercially. Some of the acceptable substitutes meeting ASTM F-104 are:

1. Garlock - Blue-Gard
2. Anchor Packing - Style 443A
3. Richard Klinger Inc. - Klingersil C-4400

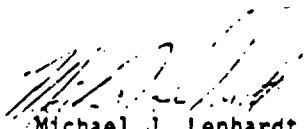
These materials are rated for 750 degrees F and pressures to 1450 psi. They are to be used for all applications falling within this operating range for which asbestos fiber sheet has been previously used; principally for the tube sheet-shell gasket. They are, effective immediately, our standard gasket material for this service.

Customer's specifications requiring asbestos gaskets are to be questioned (by project engineer), making specific efforts to substitute these materials (where possible).

Drawings for gaskets made in "more than one piece" are to show location and type of splices; they (the gasket drawings) will contain cutting sketches showing the "nesting" of the various gasket pieces on the sheet gasket material. The available sizes of gasket material is to be determined at the time the gasket drawings are prepared; the sizes and quantities needed for the job are to be order via bill of material (as opposed to use of stocked material as is the present practice).

Project Engineers are responsible for the implementation of these instructions.

TX0359


Michael J. Lenhardt
Engineering Supervisor

MJL:bf

c.c.: Drafting Department
Engineering Department
J. E. Bricker
R. G. Silver

BLUE-GARD

COMPRESSED NON-ASBESTOS GASKETS FROM GARLOCK.

GARLOCK developed BLUE-GARD gaskets to seal as effectively as asbestos in most applications.

ASTM TEST METHOD	PHYSICAL PROPERTY	TYPICAL DATA
F 37	Sealability Maximum Milliliter Hour Leakage	3
F 36	Recovery Minimum Percent	40
F 36	Compressibility Percent Range	7-17
F 146	Oil Resistance after 5 Hour Immersions ASTM #3 Oil @ -300°F	
	Thickness Increase Range	0-13%
	Maximum Tensile Loss	50%
	ASTM Fuel B @ -70-85°F	
	Thickness Increase Range	0-15%
	Maximum Weight Increase	20%
	Flexibility Bend 180° around rod with diameter 12x thicker than sheet	No cracking
	Density Grams/Cm ³ (Pounds/Ft. ³)	1.60 (100)

OTHER DATA

High Temperature Limit: -371°C (-700°F) **
Maximum Pressure (P.S.I.) x Temperature (°F) = 700,000**
Fluid Resistance: From pH of 1 through 11

** This is a general guide and should not be the sole means of selecting or rejecting this material.

BLUE-GARD gaskets are available in thicknesses of 1/32" thru 1/8".

BLUE-GARD non-asbestos material is made by the traditional sheeting method that has proven itself since 1896.

BLUE-GARD gaskets meet most of the properties of ASTM F 104 for compressed asbestos material.

BLUE-GARD gaskets eliminate the problem of meeting OSHA and EPA asbestos standards.

BLUE-GARD gaskets are comparably priced with asbestos when you figure in the costs of compliance with current regulations.

With tests indicating GARLOCK BLUE-GARD gaskets serve reliably in most applications, you can expect the exceptional level of performance for which the GARLOCK name has always been known.

MATERIAL	RATING
ACIDS	
Weak	S
Strong	NR
ALKALIES	
Weak	S
Strong	NR
GASES	
Air, Nitrogen, Carbon Dioxide and other inert gases	S
Chlorine, Bromine	S
Oxygen, Fluorine	NR
PETROLEUM OILS	
Paraffinic	S
Aromatic	S
PHOSPHATE ESTER FLUIDS	NR
REFRIGERANTS (Freon, etc.)	S
SOLVENTS	
Alcohols	S
Aliphatic Hydrocarbons (Heptane, Gasoline)	S
Aromatic Hydrocarbons (Benzene, Toluene, etc.)	F
Chlorinated	F
Esters	NR
Ketones	NR
STEAM	S
WATER & SALT SOLUTIONS	S

RATINGS

S - Satisfactory • F - Fair • NR - Not Recommended

These ratings should be used only as a guide for product selection, installation and maintenance and should not be taken as a warranty or representation for which we assume legal responsibility. No guarantee is given in practice any patented invention without a license.

GARLOCK is a registered trademark for packings, seals, gaskets and other products of GARLOCK Inc. Copyright 1981, GARLOCK Inc. All Rights Reserved.

TX0360

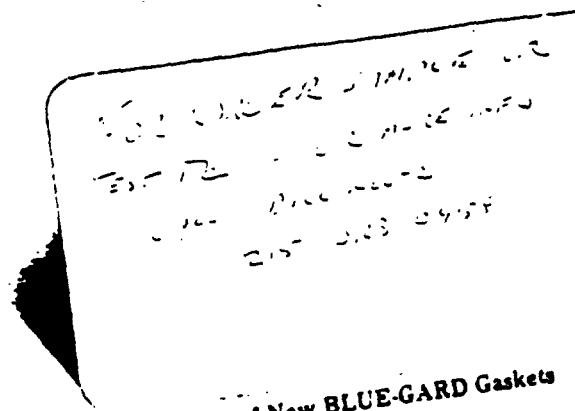
Colt Industries



Mechanical Packing Division
Industrial Gasket

1666 Division Street, Palmyra, New York 14522 315/597-4811
Garlock of Canada Ltd., Toronto, Ontario M8Z 2M3 416/255-9114

GARLOCK DID IT WE'VE GOT IT



Home of New BLUE-GARD Gaskets

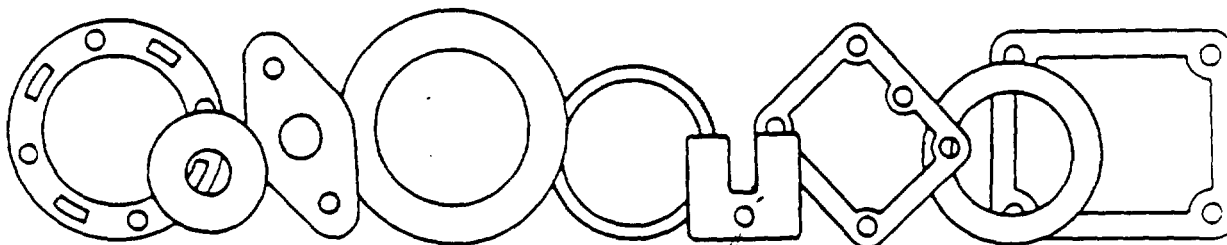
New BLUE-GARD *asbestos-free* formula* obsoletes standard compressed gaskets!

TX0361

GARLOCK BLUE-GARD gaskets are cut from tough gasketing material manufactured and formulated without asbestos. They're easier to handle on the production line, add a new element of product reliability, and provide designers and equipment manufacturers additional sales potential. Their fiber content is acrylic, bound by nitrile. More than two years in development, BLUE-GARD material now stands alone as a proven replacement for standard compressed sheet gaskets.

BLUE-GARD gaskets can be safely installed in most static sealing applications. They have wide areas of use in manufacturing and processing, off-highway transportation, compressors, small engine applications, and many other products.

BLUE-GARD gaskets are excellent for severe service involving higher pressures and temperatures. They are especially useful where heavy flanges and high bolt loads are commonly found, such as in steam lines, engine cylinder heads, compressors, and refrigeration equipment. BLUE-GARD gasket characteristics have been successfully tested to fluid resistance in pH range 1-11, and temperature resistance to +371°C (+700°F). See reverse side for specifications.



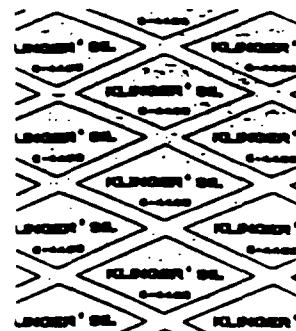
Compressed Non-Asbestos Gasket Sheet

KLINGERSIL C-4400

High quality NON-ASBESTOS material composed of fibres with highest chemical stability and heat resistance. Nitrile rubber bonded. Outstanding creep resistance at high temperatures and high loads provides maximum safety, high torque retention and excellent sealing characteristics.

Technical Data

All data are typical values and refer to a sheet thickness of 1.6 mm (1/16").
UNLESS OTHERWISE NOTED.

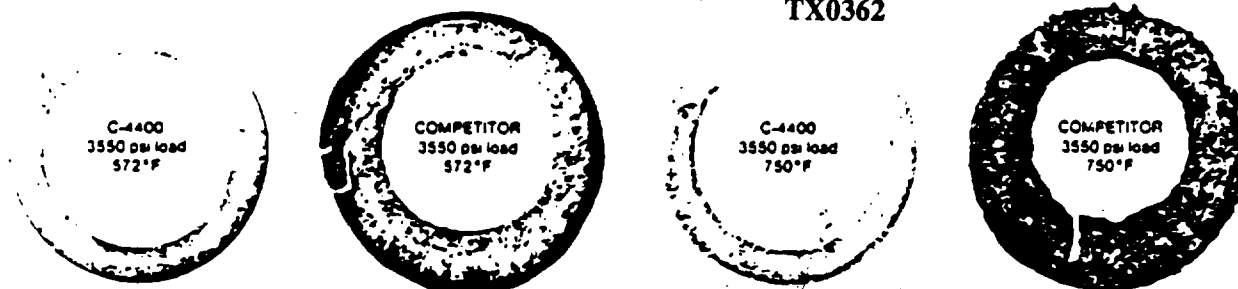


KLINGERSIL C-4400

MAX. OPERATING CONDITIONS ⁽¹⁾	Temperature Pressure	400° C (750°F) 100 bar (1450 psi)	KLINGER The world leader in "compressed" type gasket material introduces:	Suitable For Use With:
COMPRESSIBILITY RECOVERY	ASTM F36A ASTM F36A	7%-17% min. 50%		Gases
HOT COMPRESSION TEST KLINGER ⁽²⁾ Thickness decrease 23°C (73°F) Thickness decrease 300°C (572°F)		10% ⁽³⁾ 8% ⁽³⁾	KLINGERSIL C-4400 The first of a family of asbestos free compressed sheets.	Water
TENSILE STRENGTH ASTM F152 across grain		15N/mm² (2200 psi)	ASTM F104 Standard Classification/ Non Metallic Gasket Materials ASTM F104-Class P-1141-A refers specifically to compressed asbestos material. KLINGERSIL C-4400 fully means the physical properties of P-1141-A.	Steam
CHANGE IN TENSILE STRENGTH ASTM F152 after immersion in ASTM-Oil 3, 5h 150°C (300°F)		-25%		Inorganic salt solutions
WEIGHT INCREASE ASTM F146 after immersion in Fuel B 5h 23°C (73°F)		max. 15%	CHLORIDE CONTENT- KLINGERSIL C-4400 has a very low chloride content (below 100 ppm) and has good anti-stick properties. This prevents flange corrosion and considerably reduces maintenance time.	Organic Acids
THICKNESS INCREASE ASTM F146 after immersion in ASTM Oil 1 5h 150°C (300°F) ASTM Oil 3 5h 150°C (300°F) ASTM Fuel A 5h 23°C (73°F) ASTM Fuel B 5h 23°C (73°F)		0-5% 0-5% 0-5% 0-5%		Alkalis
SEALABILITY ASTM F37 (0.8mm material) (1/32)		.6 ML/hour	HOT COMPRESSION TEST - The quality of a compressed gasket material becomes critical when it has to withstand high pressures at elevated temperature. Below are pictures of Klingsil C-4400 and a competitive non asbestos sheet after testing under a load of 3550 psi and 572°F and also at 750°F. The C-4400 has been altered only slightly, while the competitive material is crushed at 572°F and destroyed at 750°F.	Aliphatic and Aromatic hydrocarbons
SPECIFIC GRAVITY		1.5		Aliphatic alcohols, esters and ketones
STANDARD SHEET THICKNESS		1/64-1/32-1/16 3/32-1/8		Oils and greases
SHEET SIZES		60x45-60x60-60x90 60x120-60x180		Heat transfer Oils
				Refrigerants

(1) (2) See notes on back-page (3) At 25 N/mm², 300°C

TX0362



INSTRUCTIONS: The purpose of this form is to solicit beneficial comments which will help achieve procurement of suitable products at reasonable cost and minimum delay, or will otherwise enhance use of the document. DoD contractors, government activities, or manufacturers/vendors who are prospective suppliers of the product are invited to submit comments to the government. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements. Attach any pertinent data which may be of use in improving this document. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity.

DOCUMENT IDENTIFIER AND TITLE

MIL-C-15430J and MIL-E-15465G

NAME OF ORGANIZATION AND ADDRESSTransamerica Delaval Inc.
Condenser Division
Front Street
Florence, NJ 08518**CONTRACT NUMBER****MATERIAL PROCURED UNDER A**☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT**1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?****A. GIVE PARAGRAPH NUMBER AND WORDING.**

MIL-C-15430J Para 2.1, Tables I & II, Para 3.2.16.3 and

MIL-E-15465G Para 2.1, Tables IV, V & VI, Para 3.5.2.5.1.1.1.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

See Attached Sheet 2

2. COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID**3. IS THE DOCUMENT RESTRICTIVE?**☐ YES ☐ NO (If "Yes", in what way?)

TX0363

4. REMARKS

We would be pleased to work with you in developing a way to handle and minimize cost to Navy and ourselves.

SUBMITTED BY (Printed or typed name and address - Optional)Henry W. Braun, Engineering Manager
Transamerica Delaval Inc.
Condenser Division
Florence, NJ 08518**TELEPHONE NO.**

(609) 499-3000 Ext. 234

DATE

April 17, 1985

Transamerica Delaval Inc.
Condenser Division
Front Street
Florence, NJ 08518

April 17, 1985
DD Form 1426
MIL-C-15430J & MIL-E-15465G
Sheet 2

1.B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

Above paragraphs of subject specifications contain asbestos material. Because of the defined health hazards associated with asbestos we are receiving letters from manufacturers of the sheet gasket and spiral wound gasket stating that shortly they will be discontinuing the use of asbestos as a gasket material. If the Navy has adopted any alternate non asbestos gasket material and has generated the associated specifications we would like to have them identified. We also believe an amendment or revised specification should be issued to provide authority to use an alternate material for application in the identified paragraphs; i.e.:

- (1) MIL-A-17472 - Replaced by ^{HH}42-P.46 for sheet compressed asbestos gaskets
- (2) MIL-G-21032E, Spiral Wound Metallic Asbestos (not listed in specification but used for steam piping joints)
- (3) MIL-P-2863, Packing, Condenser
- (4) MIL-P-17303C, Asbestos Jacketed Packing

Specifications should be changed to reflect new non asbestos gasket specifications. There are currently non asbestos substitutes; however, in lieu of requests for acceptance on each contract we are involved in, we would like specification alternatives that would permit substitution without extensive administrative effort. We believe there must be comparable requests for many other types of equipment and piping applications used for Navy and DOD contracts.

For your reference we have attached letters we have received. We are asking our vendors to supply alternates but we would like to use the specification that the Navy has selected.

Enclosure: A. Gallagher Fluid Seals letter dtd April 11, 1985
B. John Crane International Sealing Systems letter dtd March 6, 1985

BCC: M. W. Braun ✓
J. Gansky
F. J. Hamm
F. J. Smillon, Landover Office
File MIL-C-15430J
File MIL-E-15465G
File MIL-A-17472
File MIL-G-21032E
File MIL-P-2863
File MIL-P-17303

TX0364

MIL-STD-481A

18 October 1972

REQUEST FOR DEVIATION/WAIVER
(SEE MIL-STD-480 OR 481 FOR INSTRUCTIONS)DATE PREPARED
June 28, 1985

PROCURING ACTIVITY NO.

1. ORIGINATOR NAME AND ADDRESS Transamerica Delaval Inc. Condenser Division Front Street, Florence, NJ 08518				2. ☒ DEVIATION ☐ WAIVER															
				3. ☐ MINOR ☐ MAJOR ☐ CRITICAL															
4. DESIGNATION FOR DEVIATION/WAIVER				5. BASE LINE AFFECTED															
6. MODEL/TYPE 4HM80 & 15D	7. MFR. CODE SA619	8. SYS. DESIG. MIL-E-15465G	9. DEV/WAIVER NO. 511875-001	☐ FUNCTIONAL ☐ ALLOCATED ☐ PRODUCT ☐ YES ☐ NO															
7. SPECIFICATIONS AFFECTED-TEST PLAN				8. OTHER SYSTEMS/CONFIGURATION ITEMS AFFECTED															
<table border="1"> <thead> <tr> <th>MFR. CODE</th> <th>SPEC./DOC. NO.</th> <th>SCN</th> </tr> </thead> <tbody> <tr> <td>SA619</td> <td>MIL-E-15465G</td> <td></td> </tr> </tbody> </table>				MFR. CODE	SPEC./DOC. NO.	SCN	SA619	MIL-E-15465G		<table border="1"> <thead> <tr> <th>MFR. CODE</th> <th>NUMBER</th> <th>REV.</th> <th>NOR. NO.</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		MFR. CODE	NUMBER	REV.	NOR. NO.				
MFR. CODE	SPEC./DOC. NO.	SCN																	
SA619	MIL-E-15465G																		
MFR. CODE	NUMBER	REV.	NOR. NO.																
9. TITLE OF DEVIATION/WAIVER GASKET MATERIAL SUBSTITUTION FOR ASBESTOS				10. CONTRACT NO. & LINE ITEM CB-03236-011-00100															
11. CONFIGURATION ITEM NOMENCLATURE AIR EJECTOR ASSEMBLIES				12. CD NO.															
13. NAME OF PART OR LOWEST ASSEMBLY AFFECTED GASKETS				14. DEFECT CLASSIFICATION ☐ MINOR ☐ MAJOR ☐ CRITICAL															
15. PART NO. OR TYPE DESIG.				16. DEFECT NO.															
17. LOT NO.				18. QTY															
19. EFFECT ON COST/PRICE NONE				20. RECURRING DEVIATION/WAIVER ☐ YES ☐ NO															
21. EFFECT ON DELIVERY SCHEDULE NONE				22. EFFECT ON INTEGRATED LOGISTIC SUPPORT, INTERFACE, ETC. NONE															
23. DESCRIPTION OF DEVIATION/WAIVER Suppliers of asbestos gasketing (because of health hazard) we find are dropping the manufacture of material and our sources are being reduced to point where we will be unable to obtain it. Air ejector specification MIL-E-15465G defines MIL-A-17472 which has been superseded by HH-P-46. Substantiating severity of problem we attach vendor correspondence we have received. Reference Walter B. Gallaher Company letter dated April 11, 1985 and J. Crane's letters dated March 6, 1985 and May 23, 1985. We have tried further to locate alternate sources but have not been successful. Specification changes have also been requested of NAVSEA via Standardization Document Improvement Proposal Form DD 1426 dtd April 17, 1985.																			
24. NEED FOR DEVIATION/WAIVER We would like your approval to use either the J. Crane Style 2160 material defined in their May 23, 1985 letter or Blue-Gard (data bulletin attached) as an alternate for the compressed asbestos/military specification we currently are using. Should shipyard have a defined alternate they preferably would like to use, we would like the product details and specifications so we could procure and use as an alternate.																			
ENCLOSURES: 1. BLUE-GARD - Colt Industries Bulletin GSK 320 2. Standardization Document Improvement Proposal to NAVSEA dtd 4/17/85 with attached vendor letters 3. John Crane letter dated May 23, 1985																			
TX0365																			
25. PRODUCTION EFFECTIVITY BY SERIAL NUMBER 511875 thru 511881																			
26. SUBMITTING ACTIVITY AUTHORIZED SIGNATURE <i>W. J. Brown</i>				TITLE Engineering Manager															
27. APPROVAL/DISAPPROVAL																			
☐ APPROVAL RECOMMENDED				☐ APPROVED ☐ DISAPPROVED															
28. GOVERNMENT ACTIVITY				SIGNATURE DATE															

DD FORM 1694

Figure - 2 Page 8

Colt Industries



June 15, 1988

Mr. T. P. Dooley,
Imo Delaval Inc.
Delaval Condenser Division
Front Street
Florence, NJ 08518

Dear Mr. Dooley:

Thank you for your letter of 6-10-88 concerning gasketing recommendations for MIL-G-24696.

We believe that Garlock Styles 3200/3400 and 3000 will meet all of the requirements of the proposed specification and as soon as we have completed our testing, we shall advise you of our findings.

If you should have any further questions, please contact me.

Very truly yours,

GARLOCK INC

Agnes Potepan
Agnes Potepan
Manager, Sheet &
Gasket Engineering

AP:jmh

cc: RL Whittaker

Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522-9355
315/597-4811
Telex No.: 249584
Panafax No.: 315/597-5556 or
315/597-3216

*To H. Brown
L. Goulet
6/17/88
[Signature]*

RECEIVED
JUN 20 1988
CONDENSER ENG'G

TX0366

JohnCrane
International Sealing Systems

John Crane-Sealing Systems Inc.
6400 Canton Street
Meriden Grove, IL U.S.A. 60053
Telephone 312/967-2400
FAX 312/223-3623
Telex 724-420

June 16, 1988

RECEIVED

JUN 20 1988

CONDENSER ENG'G.

A. Braun
J. Zansky
6/20/88
DD

Imo Delaval Inc.
Delaval Condenser Division
Front Street
Florence, New Jersey 08518

ATTN: T. P. Dooley - Senior Buyer

SUBJECT: Non-Asbestos Gasketing Material

Dear Mr. Dooley:

I have as yet not seen any information from NAVSEA as to specific approval of our or any other non-asbestos gasketing material.

While we have been working with Mil specs MIL-G-XXL77 and MIL-G-XX272, and have submitted samples and apparently passed all of the preliminary tests, as far as I can presently determine, the tests have been stopped or are in limbo, but I'm not quite sure.

I've asked our man on the East coast who is in touch with NAVSEA disc and others involved in this as to the present status, as I've got a large file on these particular items, but no answers.

Last week though, I was in touch with BEN Laboratories who are doing Navy testing, and perhaps progress will soon be made.

If I find out anything further from our East coast contact, I will get back to you.

Sincerely,
JOHN CRANE INC.

George H. McKillop
George H. McKillop
Product Manager
Packing Division

TX0367

GMK/imp

cc: Frank Crosetti - Fairfield
Dick Boardman - Washington, DC

RECEIVED

JUN 20 1988

FOR DISCLOSURE

Colt Industries



April 25, 1988

TO: *H. Brown*
J. Jansky
4/27/88
T PD

Garlock Inc
Mechanical Packing Division
1666 Division Street
Palmyra, New York 14522-9355
315/597-4811
Telex No.: 249584
Penafax No.: 315/597-5556 or
315/597-3216

IMO Delaval Inc.
Delaval Condenser Div.
Front St.
Florence, NJ 08518

Attn: Mr. T. P. Dooley
Senior Buyer

RECEIVED
APR 27 1988
CONDENSER ENG'G.

Dear Mr. Dooley:

This letter refers to your letter of 4-5-88 and our telephone conversation of 4-13-88 concerning a non-asbestos gasketing specification for HH-P-46E.

We have been advised that the new specification is in the process of being printed and the number assigned is MIL G-24696 (formerly MIL-G-XX177(SH)).

We have already submitted a number of our products for inclusion in the QPL listing. Hopefully, this information will be available in several months time and we shall keep you posted on developments.

Should you require any additional information, please contact me.

Very truly yours,

Agnes Potepan
A. Potepan
Manager, Sheet &
Gasket Engineering

AP:jmh

TX0368

RECEIVED
APR 27 1988
PURCHASING DEPARTMENT