



PLAINTIFF
EXHIBIT
E-148

HIGH TEMPERATURE INSULATED WIRE AND CABLE SECTION
WIRE AND CABLE DIVISION

SAM LORDS CASTLE
ST. PHILIP PARISH
BARBADOS, WEST INDIES

WEDNESDAY, FEBRUARY 3, 1982
9:00 A.M.

Member Companies Officially Represented

Charles M. Chodash
Peter Petrushik
George Graeber
John F. Cichy
John J. Mancino
Robert Smith

Walter J. Plate
Ronald H. Filius
James C. Kenny
John G. Heaslip
Adam Garden
John C. Armacost
Poul Nielsen
George G. Rogers
Rolfa Rogers

Harrison P. Quirk
R. C. VerMerris
Harry R. Helmer
Frank Brice

George W. Heller
Robert R. Prusak
Roger E. Brooks

Roger E. Brooks

George W. Heller
Robert R. Prusak
Roger E. Brooks

George W. Heller
Robert R. Prusak
Roger E. Brooks

None

None

RBB 01336

Others

Bernard H. Falk
John E. McGintee

NEMA President
NEMA Staff

ABSENT

Bristol Corporation, Easy Heat-Wirekraft Division
Eaton Corporation,
Process Control Components Division
Essex Group, Inc., Power Conductor Division,
Subsidiary of United Technologies
General Electric Company
LaBarge, Inc., Wire and Cable Division
Markel Corporation
Milibride, Inc., Subsidiary of Belden Corporation
Newcon Wire & Cable Corporation
Okonite Company, The
Philadelphia Insulated Wire Co., Inc.
Pirelli Cable Corporation, Special Cable Division
Prestolite Wire Division, Eltra Corporation
Rockbestos Company, The
Division of The Marmon Group, Inc.
Surprenant, Albert H., Inc.
Techbestos, Inc.

PRESIDING OFFICER:

JOHN ARMACOST, CHAIRMAN

I. APPROVAL OF PREVIOUS MINUTES

The minutes of the previous meeting of April 1, 1981 were approved in the form distributed.

II. SECTION CHAIRMAN'S REPORT

The Chairman, Mr. John Armacost extended a welcome to the attendees making mention that Alpha Wire Corporation (new member of the Section), Continental Wire and Cable, Anaconda-Ericsson and Thermo Electric Company were attending for the first time.

The membership of Alpha Wire brings the Section membership up to thirty companies making it the largest Section in number of companies in the Wire and Cable Division.

Membership contacts are being made with Mohawk Wire and Cable Corporation; Montrose Products Corporation; Phalo Corporation and Times Wire and Cable. It was noted that since the 1969 Meeting in Barbados the Section has grown from 23 companies to 30 companies.

The 1982 Program Committee, Chairman Mr. A. Garden and Messrs. F. Brice, G. Graeber and H. Quirk received a rousing thanks from Mr. J. Armacost and the members for arranging this excellent meeting.

III. SECTION STATISTICS

Although Mr. H. Knettner, Section Statistical Committee Chairman was unable to attend, he provided Mr. R. Prusak with the following report:

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On Statistical Form S-622 (Total Industry Net Domestic Sales) a few editorial changes have been made on the form itself as well as the instructions. Inasmuch as the total sales figures are significantly affected by copper and silver price fluctuations a statistical activity on the total consumption of silver was contemplated. This idea, however, was dropped as being impractical. Instead a ballot was conducted to report footage in addition to dollar amounts, either on Form S-622 or possibly on a separate form.

The Secretary advised that this suggested activity was dropped by the Planning Committee because the mix of products is too great to form a good base.

Form S-625 (Materials Consumed) was changed to call for the inclusion of color concentrates with the base resins.

Form S-627 (Classes of Trade) is earmarked to show an additional category for ship-board cables.

Form S-628 (Backlog). It has been suggested to drop the category for unfilled orders, inasmuch as the data generated on this subject are not consistent or meaningful to most reviewers. There has been an ongoing discussion on this subject; a clear restatement of the position of the Section on this subject should be given to the Statistical Committee.

On Form S-630 (Capacity and Capacity Utilization). It has been suggested to change the standard unit of product for Item No. 5 (Thermo-plastic Extruders larger than 1 1/4 inch diameter but smaller than 2 1/2 inch diameter) from 20-1932 type K to MIL-W-22759/16-22 (22-AWG Tefzel, 9 MIL wall), this construction being much more popular than the FEP version.

On a Divisional level a Statistical Activity has been introduced to account for the total consumption of silicone rubber resin, with the High Temperature Insulated Wire Section, Electronic Wire and Cable section, the Flexible Cords Section and Power and Control Cable Section participating. This Joint Section effort has been introduced to arrive at meaningful figures for silicone rubber, without introducing significant inaccuracies due to conflicts in scope between Sections involved. All information has been forwarded to NEMA Headquarters for the Statistical Department to prepare a suitable form. Initially the total consumption for the year 1981 is to be reported.

A letter ballot was conducted on the possible inclusion of Plenum Cables into the scope of the High Temperature Insulated Wire Section.

The Secretary reported that there were 17 affirmative votes and no negatives.

A letter ballot was conducted among the participants in the Statistical Activity form S-622 to waive the 60/80 rule in an effort to minimize the contractions on a monthly and year to date basis of the numbers reported back to the member companies. Sixteen affirmative votes have been received but one company did not vote because the question was raised as to what benefits if any would be gained by the waiver. The NEMA Statistical Department was requested to put together back figures and come up with a quarterly report for internal use to determine if the waiver of the 60/80 rule would solve the problem. This would entail a change of the release of form S-622 from a monthly to a quarterly basis in addition the Statistical Department was requested to put together, for internal use, a report as though the 60/80 rule had been waived to see if such a waiver would be worthwhile.

Mr. R. Gorman, Manager NEMA Statistical Department came to the following conclusions:

1. Releasing the data on a quarterly basis instead of monthly would allow the release of only one or two additional separate items per quarter. Data would still need combining as there are 60/80 and one and two company disclosure problems.

RBB 01338

2. If the 60/80 rule were waived more data would be released. Columns 4 and 5 for each item A through D are usually combined but could be released separately most months. Item E2 or the total of Item E would be released almost every month. For Item K Columns 1, 2, 3 and Columns 4 and 5 could be released as two separate figures instead of just a total most months. The total for Item L or combined and separate figures for L would be releasable more often.

The same holds true for Item M and N.

The Statistical Committee recommends that this matter be resolved with a positive action; the remaining outstanding vote would have to be submitted in writing in the affirmative to achieve this objective.

The Secretary reported that although 100% approval has been received there are now two new companies in the program, who will have to be ballotted as well.

During 1981 the Statistical Committee has been meeting in conjunction with the Wire and Cable Divisional Statistical and Marketing Committees. Interfacing with representatives of the other Sections have been found to be of benefit to all parties concerned.

On October 22, 1981 the third NEMA High Temperature Insulated Wire and Cable Symposium was held in New York City with a good attendance. The scope was changed in that a presentation of the Technical Committee Chairman Mr. Robert Curren was included, and very well received both among member companies and prospective new members. It is hoped for the future the organization of these symposia will be conducted by the Planning Committee, since the scope will be broader than statistics alone.

The Secretary advised that there were 56 attendees of which 6 were non-member companies. The Fourth Annual Symposium will be held on October 21, 1982 at the Warwick Hotel in New York City in conjunction with a Planning Committee Meeting.

IV. SCOPE PROPOSALS

1. Addition of plenum telephone cable to the scope of the Section.

The Secretary reported that plenum cable suitable for a 135°C and higher is presently in the scope with the exception of telephone cable which is not in the Wire and Cable Division scope.

A letter ballot was issued proposing this addition to the scope and the results were 17 affirmative votes with 0 negative votes.

The Secretary reported this to the Division Executive Committee at their meeting on December 4, 1981 at which time they approved scope addition and recommended that it be placed on the next agenda of the Wire and Cable Division Board for final approval.

Fiber Optics

The Secretary advised that he had reported to the Executive Committee on December 4, 1981 that he had received a favorable response to his survey letter that fiber optics be added to the Wire and Cable Division scope. He noted that several suggestions were made that fiber optics should be added to the Electronic Wire and Cable scope rather than starting a new section.

The Executive Committee recommended that before taking further action on this they will investigate to see if there are any other industry groups serving this product. A report will be forthcoming at the next Executive Committee meeting.

V. REVISE CLASSIFICATION OF WIRE AND CABLE TYPES BOOK

The Secretary reported that as a result of his work on the revision of the Wire and Cable Classification Book, he has noticed that many types of Wire and Cable have no NEMA designation. The draft of this revised book was sent to the Technical Advisory Group of the Wire and Cable Division for final review on December 28, 1981.

RBB 01330

Upon completion of this review a final revision will be made and then it will be sent to press.

VI. TECHNICAL COMMITTEE REPORT

Although Mr. R. Curren, Section Technical Committee Chairman was unable to attend, he provided Mr. J. Armacost with the following report:

MSSC Project 1018-MIL-W-22759

There has been virtually no action on the part of the Navy to the several repeated requests by the Technical Committee for a specification change during the past two years. This has been due to work loads imposed on Mr. H. Kline. It has been reported that Mr. Kline has retired from the Navy but is now working as a consultant to them. It is hoped that in this position he will be able to devote his energies to wire specification as opposed to other projects that have been previously assigned to him. Several items have been pending and all of these will continue to be pursued by the Committee.

The Committee is challenging the Navy (R. Peterson Naval Avionics) in its attempt to call out a specific insulating compound by name (Tefzel 200 vs Tefzel 280). The Navy questions the ability of Tefzel 200 to pass a 200°C life cycle test without cracking. The Committee feels that if the material can be processed to pass the test, then it is of no concern to the Navy as to which of the several compounds has been used.

MSSC Project 1024-MIL-C-17E

The Committee has made recommendations for having a Class I and Class II coaxial cable designation (Class II to be swept frequency required cables and Class II to have no requirements for swept frequencies). This concept has been accepted by DESC. New slash sheets are being issued and will be reviewed by the Committee as they appear.

MSSC Project 1039-MIL-W-16878 Revision E

Although Revision E and its associated 33 slash sheets were issued August 10, 1981 as superseding MIL-W-16878D, the Committee has just learned from DISC-Ed Block that since the E revision was not a coordinated document through the Military Services, DISC will not purchase anything to it. DISC is currently placing orders to revision D and it would appear that this situation must be resolved since the E revision is currently "on the street". Further to the problem, several of the E revisions slash sheets contain specification requirements for insulation that do not make sense. If the E revision is the active document then these problems will have to be addressed by the Committee. A letter is being sent to Mr. Sam Wong at Navy and Mr. E. Block at DISC for clarification.

MSSC Project 1051-MIL-W-81381

The Committee desired to have the print color designator made optional in 81381, as is currently the case for MIL-W-5086 and MIL-W-22759, is still under review and may get some action when Mr. H. Kline has time to work on it under his new consultant title.

MSSC Project 1062-MIL-C-27072A

The Air Force is in the process of adding shielded wire formally covered under MIL-W-16878D into MIL-C-27072, as well as revising the base specification of 27072. At the last contact with DISC we were advised that the revisions had been made and approved and were awaiting release.

MSSC Project 1042 - Government Deletion of Slash Sheets
for MIL-W-22759, MIL-W-81044 and MIL-W-81381

The military have gone ahead and deleted most of the slash sheets that they first indicated would be deleted. This has happened despite the protest of NEMA, A2H and OEM aircraft companies. The base reason for the deletions has been the proliferation of specification numbers that have not been purchased or stored by DISC in the past several years.

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MSSC Project 1058-MIL Standard 454G Requirement 20 for Hookup Wire Notice No. 2 August 15, 1981 has been issued with the following footnote:

4.2 Application Restrictions

4.2.1 MIL-W-76 shall be used for Army applications only

4.2.2 MIL-W-16878 shall not be used for Air Force applications

4.2.3 MIL-W-22759 shall not be used in Air Force applications except for MIL-W-22759 /32,/33,/34,/35,/41 and /42

4.2.4 wires with polyvinyl chloride insulation shall not be used in manual aerospace applications.

The reason cited for these cautions is based on cold flow problems with TFE insulations.

The Air Force is meeting March 10 and 12, 1982 at Shelter Island, San Diego, for a 454 coordination meeting. Main topic is to broaden restrictions for PVC from not only manned space vehicles, but everything. It is expected that the Committee's protest letter will be a topic at the coordination meeting.

Naval Air Systems Command - Aircraft Wire Preferred Use for Rewiring Actions

A letter issued by Donald R. Eaton, October 27, 1981 cites the maintainability and durability problems in current Aircraft Wiring Systems caused by the use of polyimide type wires. The letter states that "polyimide type wire is not the optimum wire for use in Naval aircraft due to the inherent characteristics of the Kapton polyimide type insulation i.e. susceptibility to the Ph type cleaning compounds used by the Navy in corrosion control washing of air-crafts; chafing during high vibrations; stiffness which resists conformity to sharp bends; brittleness, notching, and cracking of the protective coating which can result in arcing within the wire bundle."

55 MIL-W-22759/34/41 and/43 has been touted as the "most advanced wire insulation in current use. The letter states that these slash sheets are the preferred wire for use in Navy Service Life Extension Program, (SLEP) Engineering Changes Proposals, (ECP), and Standard Report Level Maintenance (SDLM) programs."

Discussions with Mr. D. Pielmeier points out that this letter is an expression of preference by the maintenance group. Pielmeier's position is that the Engineering group has specified and approved several different wire constructions in MIL-W-5088 and that the maintenance group is within their right if they choose to select only one type from this multiple choice list for maintenance and repair use. (It should be noted that Mr. Pielmeier is the custodian for MIL-W-22759).

Mr. Edward Block of DISC reported at our last meeting, that he has done considerable study of the validity of the Air Force to choose slash sheets (34,/41/43) in a Navy controlled document. He makes the point that these were uncoordinated sheets and that the procedures for specification adoption have not been followed.

ACTION: The Section questions the single source decision and recommends that a letter be sent to the military providing a background as to all the work done by the NEMA High Temperature Insulated Wire and Cable Technical Committee for the various services and in this case they were totally ignored. The Section recommends formation of an Ad Hoc Committee to put together a letter to Vice Admiral Ernest R. Seymour, Commander, Naval Air Systems Command, protesting this proposal.

ACTION: It was recommended that the following Ad Hoc Committee develop this letter to be sent to the Navy over the signature of NEMA President, Mr. Bernard H. Falk:

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Mr. J. Armacost - ITT Surprenant Division
 Mr. F. Brice - Teledyne Thermatics
 Mr. G. Graeber - Brand-Rex Company, A Part of Akzona, Inc.
 Mr. G. Heller - Tensolite Company, Division of Carlisle Corporation
 Mr. H. Helmer - Teledyne Thermatics
 Mr. J. Kenny - Harbour Industries Inc.
 Mr. J. Mancino - Carolina Wire and Cable, Inc.
 Mr. R. Prusak - Thermax Wire Corporation
 Mr. P. Petruchik - Brand-Rex Company, A Part of Akzona, Inc.
 Mr. R. Smith - Champlain Cable Corporation

MSSC Project 1059 MIL Standard 1060 Covering Two Conductor Transmission Lines for Electronic Equipment Used in Aircraft.

A new test standard has been developed and will be issued shortly covering a test procedure to be used in determining impedance at 1Mhz.

REA Specification for Station Wire and Inside Telephone Cable

Comments were received from the last letter ballot and resolved at the Committee's last meeting. The specification will go out for rebalotting.

Power-Limited Circuit Cable for Ducts, Plenums and Other Spaces used for Environmental Air-NEC Article 725 Class II - Section 300-22(b) and (c) Without Conduit

The results and comments from the last letter ballot were resolved at the January meeting and this specification will go out for rebalotting and final submittal to UL for UL acceptance.

Commercial wire and cable specification HP 100; HP 100-1 and HP 100-2

After several ballot procedures and review of comments and negative votes, the Committee has decided to send the document to the NEMA Codes and Standards for final resolution.

Technical Joint Section's Committee with Electronic Wire and Cable and Flexible Cords Section.

UL has accepted the Committee's recommendation and is in the process of putting together a first draft of this new simplified standard.

3KHz Sinusoidal Spark Testing Procedures

A first draft of this procedure has been prepared and is being reviewed by the Committee for a report at the April 1982 meeting. The purpose being to issue the procedure in much the same manner as HPI-impulse dielectric testing procedure.

Participation in IEC activities Mr. H. Kuettner has been appointed representative to this Committee by the Planning Committee.

NEMA Standard WC30 1976-color Coding of wires and cables

Letter ballots reaffirmed this standard, but three comments are in the process of being resolved.

Wire NEMA Engineering Bulletin No. 69 Continuity of Conductor Coating in High Temperature

Letter ballots have rescinded this Engineering Bulletin

The Chairman thanked Mr. R. Curren for doing a fine job and requested that he express the Section's thanks to the full Technical Committee.

VII. IEC ACTIVITIES

It was suggested that the Planning Committee consider that a the joint representative for both the High Temperature Insulated Wire and Cable and Electronic Wire and Cable Sections be named for IEC 208.

The Planning Committee approved an action recommending that Mr. H. Kuettner represent the High Temperature Insulated Wire and Cable Section. The Electronic Wire and Cable Section should be contacted and asked if they are interested in participating.

VIII. 1981 PROGRAM COMMITTEE

The Secretary provided the following financial statement covering the 1981 annual meeting.

Balance March 17, 1982	1,631.57
Receipts from participants	<u>93,554.00</u>
	\$95,185.57
Expenses	<u>94,379.00</u>
Balance on hand for 1982 annual meeting	\$ 806.57

IX. 1983 PROGRAM COMMITTEE

Mr. G. Graeber, 1983 Program Committee Chairman reported that this meeting will be held during the week of January 29-February 5, 1983 at the Sheraton Royal Waikoloa Hotel on the Hawaiian mainland. Taylored Meetings, Inc., travel coordinator has reserved 60 double rooms.

To assist Mr. Graeber the following members were appointed to the Committee:

Mr. F. Brice, Teledyne Thermatics
Mr. R. H. Filius, Continental Wire and Cable, Anaconda-Ericsson Inc.
Mr. A. Garden, Hitemp Wires Inc.
Mr. H. Quirk, Quirk Wire Company, Inc., DBA Wirecraft Products

X. 1984 PROGRAM COMMITTEE

Mr. J. R. Armacost, Section Chairman appointed Mr. H. Quirk Chairman of the 1984 Program Committee.

XI. LEGISLATIVE AND REGULATORY UPDATE

The Secretary distributed copies of the January 1982 Legislative and Regulatory Update provided by the NEMA Public Affairs Department.

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XII. ELECTION OF OFFICERS

The Nominating Committee presented their recommendations for a Section Chairman and Vice Chairman for the coming year:

Chairman, Mr. R. C. VerMerris, Radix Wire Company
Vice Chairman, Mr. A. Garden, Hitemp Wires, Inc.

Messrs. VerMerris and Garden were unanimously elected.

Mr. Armacost thanked the members for their support over the past two years.

Mr. R. C. VerMerris thanked Mr. Armacost for the excellent job that he has done during his terms of office.

Mr. R. C. VerMerris appointed the following Committee Chairman for the year of 1982:

Technical Committee Chairman - Mr. D. Dombrowsky - Tensolite Company, Division of Carlisle Corporation

Statistical Committee - Mr. H. Kuettner - Thermax Wire Corporation

XIII. NEW BUSINESS

1. It was reported as an information item that work is being done at NBS with regards to toxicity problems. They have established a test to determine toxicity, however, SPI doesn't agree with it. The test has been written and is being circulated through various government agencies. The results will be published by the Department of Commerce.

Mr. B. H. Falk, NEMA President, informed the members that NEMA was acting as a catalyst to see that more work is done on the question of toxicity. NFPA is working on research and should have some recommendation by June 1982 affecting the National Electrical Code.

2. The Secretary reported as an information item that the Wire and Cable Division Executive Committee approved a recommendation to conduct a survey on sales agents' commissions, contracts, etc. in the form of a questionnaire which will be distributed by the NEMA Statistical department. This questionnaire will be developed by the Division Marketing and Statistical Committee at their meeting in March and the Executive Committee will review this at their May 1982 meeting.

XIV. TIME AND PLACE OF NEXT MEETING

The next meeting was scheduled for January 29-February 5, 1983 at the Sheraton Royal Waikoloa Hotel in Hawaii.

XV. ADJOURNMENT

There being no further business, the meeting was adjourned at 10:20 a.m.

John E. McGintee
Secretary

JEM:ws

REVIEWED BY COUNSEL

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