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AMERICAN PETROLEUM INSTITUTE  
MEDICAL ADVISORY COMMITTEE

NINTH MEETING

Minutes of Meeting

~~April 2, 1948~~

Book-Cadillac Hotel  
Detroit, Michigan

MEMBERS PRESENT

A. E. Hoag - Chairman  
Kieffer Davis - Vice Chairman  
J. P. Holt - Secretary

V. C. Baird  
F. F. Boys  
Marshall Clinton  
L. E. Curtis  
T. M. Frank

T. J. Kelly  
E. K. Linder  
J. W. Long  
(Rep. by R.M. Landon)  
E. P. Luongo  
M. N. Newquist

R. C. Page  
B. B. Reeve  
Chas. A. Swan  
(Rep. by H.P. Lankelma)  
McIver Woody

ASSOCIATES PRESENT

E. W. Adams  
L. C. Beard, Jr.  
R. S. Bonsib  
R. C. Cole  
A. E. Dooley

H. W. Field  
(Rep. by R.D. Bent)  
H. G. M. Fischer  
N. J. Gothard

R. M. Landon  
H. P. Lankelma  
K. G. Mackenzie  
R. M. Watkins  
H. H. Zuidema

GUESTS

Clyde M. Berry - Esso Standard Oil Co., New York, N.Y.  
Philip Drinker - Harvard University, Boston, Mass.  
J. W. Hammond - Humble Oil & Refining Co., Houston, Texas  
A. O. Seeler - Harvard University, Boston, Mass.  
D. V. Stroop - American Petroleum Institute, New York, N.Y.  
J. B. Stucker - The Pure Oil Co., Winnetka, Ill.  
H. G. S. Van Raalte - Shell Oil Co., Inc., Curacao, Netherland Antilles  
H. R. Warrick - The Texas Co., New York, N.Y.

Total in Attendance - 36

MEMBERS ABSENT

W. O. Armstrong  
D. M. English

Harold E. Fraser

W. R. Levis  
W. A. Morrison

ASSOCIATES ABSENT

W. R. Argyle  
C. R. Brown  
L. O. Crockett

R. S. Driver  
E. W. Isom  
D. W. Larmer

C. R. McKay  
R. B. Roaper  
H. D. Wilde

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9<sup>th</sup> MAC meeting  
Detroit April 2

STATEMENTS OF COMMITTEE POLICY

Preliminary to the regular order of business, the Chairman stated that members of the Medical Advisory Committee in executive session had requested him to report statements of committee policy as follows:

1. Decisions on recommendations as to medical problems and policies and as to appropriations of funds for medical research should be the sole responsibility of the fully accredited members (MDs) of the Medical Advisory Committee.
2. Recommendations to individual oil companies about contributions to the API Medical Research Fund also should be the sole responsibility of the fully accredited members.
3. In keeping with these responsibilities, each motion and each vote on such a matter should be made or cast by a fully accredited member or, in his absence from the meeting, by his duly designated representative.
4. No limitations should be imposed upon associate members or invited guests in the discussion of motions at meetings of the Medical Advisory Committee.
5. At meetings of subcommittees there should be no restrictions limiting the making of motions or voting by associate members of the Medical Advisory Committee.

Action The members present voted unanimously to adopt these statements of committee policy.

II

MINUTES OF EIGHTH MEETING

Action The minutes of the eighth meeting, held November 12, 1948, were approved as circularized.

III

REPORT OF SUBCOMMITTEE ON CARCINOGENICITY - DR. McIVER WOODY, CHAIRMAN

The subcommittee reported progress and recommendations. (Copy of the report is attached as Appendix A.)

Action The Committee received the report and voted unanimously in favor of recommendations as follows:

1. That the American Petroleum Institute should arrange an exchange of information with the Institute of Petroleum on subjects of mutual interest relating to carcinogenicity.
2. That the unallocated balance in the Medical Research Fund resulting from the current solicitation should be allocated

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4. That the section of the toxicological reviews on "Probable Sources of Contact" be deleted from future reviews. (Dr. Holt opposed this recommendation.)
5.
  - a. That the preparation of toxicological reviews be continued;
  - b. That the list of substances which Dr. Seeler now has be circularized for determination of priority, each member to rate the five most important in order;
  - c. That an opportunity be given to members of the Medical Advisory Committee to add new subjects for Dr. Seeler to circularize for priority determination;
  - d. That the following substances be added to Dr. Seeler's list:
    - (1) Mercaptobenzothiazole
    - (2) Sodium nitrite
    - (3) Carbon disulfide
    - (4) Sodium chloride
6. That members of the Medical Advisory Committee suggesting new substances for review state their reasons for recommending them.
7. That some medical man from the East or Mid-west, with Mr. Landon and Mr. Gothard, be appointed to act as liaison with the Committee on Disposal of Refinery Wastes, and that they keep the Medical Advisory Committee informed of the activities of the other Committee.
8. That the following final toxicological reviews be turned over to the Editorial Committee for publication:  
  
Acetic acid  
Amyl acetate  
Beta-naphthol  
Butyl acetate  
Cyclohexane  
Methylcyclohexane

Action

The Committee voted to adopt the eight recommendations as reported by the subcommittee, except as follows:

Recommendation No. 4 - When the section on "Probable Sources of Contact" is deleted from toxicological reviews the Editorial Committee should add a suitable note giving reasons for deletion.

Recommendation No. 5.d. - DDT was added as a fifth new substance.

B. Experimental Studies on C<sub>9</sub> to C<sub>12</sub> Aromatics

A member referred to the recommendation accepted by the Committee at its meeting held in Chicago on November 12 which provided that toxicological experimental studies on C<sub>9</sub> to C<sub>12</sub> Aromatics should

3. That the API should make available on request by anyone copies of the bibliography which had been attached to this paper by Mr. Kriete after a suitable credit line for him has been added to the bibliography.

Action The Committee voted to adopt the three recommendations made by the subcommittee and to extend its thanks to Mr. Kriete, by letter from the Chairman, for the substantial contribution he had made to the committee's work in this field.

B. Proposed Bulletin on "Good Cutting Fluid Practices and Hygiene"

The subcommittee reported a third revised draft of this bulletin and recommended that copies be mimeographed and circularized to all members and associates for comment and criticism and for further consideration by the Committee at its annual meeting. (Copy of the third revised draft is attached as Appendix D.)

Action The Committee voted to adopt this recommendation and a suggestion that copies of the revised draft should be circularized to members of the Institute's Lubrication Committee for comment and criticism.

VII

REPORT OF SUBCOMMITTEE ON MEDICAL POLICIES AND PRACTICES-DR. L.E. CURTIS, CHAIRMAN

The subcommittee recommended that its scope of activities should be limited to the gathering and dissemination of information from and to the members of the Medical Advisory Committee on subjects of mutual interest relating to medical policies and practices.

The specific subjects to be included in the subcommittee program shall be based upon inquiries from members and be determined by assignments made by the Medical Advisory Committee, or by consensus of members of the subcommittee with the approval of the Medical Advisory Committee.

The only subject recommended for inclusion in the subcommittee program is the establishment of a comprehensive file of forms used by oil-company medical departments. It is proposed that this file should be maintained at API headquarters and be loaned to any member of the Medical Advisory Committee on request.

Action The Committee voted unanimously to adopt the report as presented.

VIII

INDUSTRIAL HYGIENE FOUNDATION OF AMERICA

Dr. Holt made a progress report on this assignment which had been made to Drs. Holt and Levis at the eighth meeting. He expressed his belief that definite recommendations could be reported at the tenth meeting of the Medical Advisory Committee.

Action The progress report was received.

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IX

AIR POLLUTION CONFERENCE OF MANUFACTURING CHEMISTS' ASSOCIATION, APRIL 19-20, 1949

By unanimous vote the Committee requested Chairman Hoag to attend the MCA Conference as the designated representative of the Medical Advisory Committee.

X

TENTH MEETING

It was the consensus of those present that the Committee should hold its tenth meeting in Chicago on Friday, November 11, 1949, with subcommittee meetings to be held on Thursday, November 10, with a schedule such that Thursday afternoon will be devoted solely to a meeting of the Subcommittee on Carcinogenicity.

XI

ADJOURNMENT

There being no further business to be considered, the meeting was adjourned.

D. V. Stroop

Acting for J. P. Holt, M.D.  
Secretary

Approved:

A. E. Hoag, M.D.  
Chairman

APPENDIX A

To Minutes of 9th Meeting of Medical Advisory Committee

REPORT TO THE API MEDICAL ADVISORY COMMITTEE

BY THE SUBCOMMITTEE ON CARCINOGENICITY

Dr. McIver Woody - Chairman

April 2, 1949

On behalf of the Subcommittee on Carcinogenicity, I wish to present to the Medical Advisory Committee for transmittal to the Safety Committee of the Board of Directors, the following report:

Dr. Kehoe assures us that laboratory facilities for a colony of 10,000 mice (enough to test at least 200 samples in the course of a year) will be available at the University of Cincinnati not later than June 30th. This was made possible by the American Petroleum Institute grant of \$40,000 for capital expenditures, of which \$30,478 has been put into the new building and \$8,264 has been put into new equipment, leaving \$1,258 to provide additional apparatus as needed. These new facilities are earmarked for the petroleum industry. The American Petroleum Institute has first call on them. After its needs have been met, work can be undertaken for individual oil companies up to the capacity that has been provided by the capital grant.

From the grant of \$25,000 for current expenses, with due regard for economy, \$2,482 was used during 1948, and expenditures for the first 6 months of 1949 are estimated at \$14,660. This will leave a balance of \$7,858 on hand July 1, 1949.

Dr. Kehoe estimates that a full utilization of these facilities by the petroleum industry will entail operating expenses of \$122,000 for the year ending June 30, 1950. He also estimates that from \$22,000 to \$32,000 of this cost will be met by grants from individual oil companies for special work to be done on their accounts. The balance of \$90,000 to \$100,000 would be chargeable to the American Petroleum Institute.

In appointing Dr. A. Wesley Horton as Assistant Professor of Industrial Hygiene, the University of Cincinnati has selected an organic chemist with practical experience in polycyclic hydrocarbons, a knowledge of physical chemistry and an understanding of our technical processes. He will devote his entire attention to the chemical aspects of the investigation and, having academic status, he can collect confidential data from competing companies without revealing the source from which it came. During the past 3 months he has called on many members of this committee, and conferred with many of their technical experts. He is now on the Pacific Coast and upon his return he will visit Oklahoma and Texas. On the basis of first-hand information thus obtained, he will prepare a list of samples to be tested at Cincinnati between now and July 1950. This list will be reviewed by the subcommittee and submitted to Dr. Kehoe for final approval.

In appointing Dr. J. J. Phair Professor of Preventive Medicine, the University of Cincinnati secures an epidemiologist with practical experience in public health and hospital administration. He is still

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Commissioner of Health of Louisville, but after July 1st he will be able to devote half his time to American Petroleum Institute problems. He had already conferred with the medical directors of several oil companies to see what medical records are available and to determine what epidemiological techniques can be used to advantage. The long incubation period of cancer is one of the factors peculiar to the problem. A cancer registry for the petroleum industry is one of Dr. Phair's objectives, but he has his doubts concerning the successful enforcement of laws that require the reporting of occupational cancer as advocated by some authorities.

The National Cancer Conference which was held in Memphis, February 25-27 inclusive, under the sponsorship of the American Cancer Society and the National Cancer Institute of the U.S. Public Health Service was attended by over 350 investigators from all parts of the country, of whom 24 were assigned to the panel on occupational cancer. It was quite evident that the problem of carcinogenic agents in the petroleum industry is an open book and that control measures, both medical and technical, must be adopted. It was also agreed that the petroleum industry is to be congratulated on having undertaken a comprehensive study of the pressing problems.

A similar situation has developed recently in England, where the Medical Research Council has appointed a committee on occupational cancer of eight members, including Colonel S. J. M. Auld representing the Institute of Petroleum. He informs us that certain lubricating oils, notably those used in the textile industry, are being looked upon with suspicion and that some companies have undertaken the manufacture of white oils as substitutes, although there is no demand for them as yet. The valuable research done at Birmingham is now going forward with government support, and in view of the similarity of the problem in both countries, Dr. Auld advocated a free exchange of information between the American Petroleum Institute and the Institute of Petroleum.

It is recommended that:

1. The American Petroleum Institute exchange information on cancer with the Institute of Petroleum.
2. The allocation of funds to continue cancer research at the University of Cincinnati for the 12 months ending June 30, 1950 be increased from \$50,000 to \$100,000.

APPENDIX B

To Minutes of 9th Meeting of Medical Advisory Committee

REPORT TO THE API MEDICAL ADVISORY COMMITTEE

BY THE SUBCOMMITTEE ON FLUORIDES

Dr. Kieffer Davis - Chairman

April 2, 1949

On March 30, 1949, a meeting was held in Dr. Robert A. Kehoe's office at Kettering Laboratory, Cincinnati, Ohio, to discuss the research work on fluorides now under way at that institution. Representatives from all companies participating in this program were present - Pennsylvania Salt, Reynolds Metal, The Aluminum Company of America, du Pont, Universal Oil Products, and Medical Advisory Committee of the API. Doctors Hoag and Davis were present in behalf of the Subcommittee on Fluorides.

The annual report on the progress of experimental investigation of the storage of absorbed fluorides by man and animals was discussed and accepted by the group. At this time the group considered that sufficient animal experimentation had been completed on this matter and future work would be limited to human subjects (adults).

The following experiments are anticipated for this year:

1. Continuation of subject E.B. at the present level of ingestion, 12 mg. daily of fluoride as NaF, for several months.
2. Subject K.W. should begin a period of ingestion of fluorides, as NaF, at the rate 3 mg. daily, and continue that one or two years.
3. Observations on subject E.L. are discontinued but should be resumed when metabolic balance has again been reached.
4. Resume the collection of data on losses of fluorides through the skin when additional equipment has been installed.

A fifth experiment was proposed - to expose a subject over a considerable period of time to HF vapor, 1 part per million, and determine as in the ingestion procedures the amount of fluoride absorbed and stored. Because, however, of the great cost entailed in setting up the necessary chamber, other equipment and employing a subject, this procedure was deferred for the present time.

When it becomes possible to undertake them, the following investigations, under the direction of Dr. Kehoe, should be carried out:

1. Extend research on analytical methods to improve the determination of fluorides in blood, in particular, and in other biological samples as well.

2. The administration of fluorides in solution parenterally to study the relation of a maintained blood fluoride level to the rate of urinary excretion of fluorides.
3. Obtain data from workmen who have had several years of exposure to fluorides in industry, studying the loss of fluorides from the body and the reversibility of the total changes, chemical and pathologic, observed under conditions of exposure. Subjects might be available among employees of the industry.

During the meeting it was brought out that a number of other companies interested in this problem should be given the opportunity to join our group at Kettering Laboratory. By admitting others to this research problem not only would the information resulting from this procedure be further disseminated now to responsible companies, but, also, sufficient additional funds might be acquired to permit investigation of this problem beyond the work which was initially set forth. Dr. Frary was selected to correspond with peoples of these companies.

Abstracts of a considerable number of articles covering work completed on fluorides experimentation by others have been compiled and will soon be in mimeographed form for distribution to the companies sponsoring this work. Sufficient copies have been requested to allow each member and associate of the Medical Advisory Committee to receive one.

Dr. Kehoe was approached concerning the possibility of using Boron Trifluoride as a test agent in some one of these experiments. It was his opinion that a complete procedure should be worked out using the fluorides that were started with before testing other specific ones.

Because of the recognized increasing importance of this problem, the Subcommittee on Fluorides suggests that the Medical Advisory Committee consider this a long-range program (two or more years) and that the American Petroleum Institute continue to support Dr. Kehoe and his group at Kettering Laboratory in this research work.

This progress report is hereby submitted for your approval.

APPENDIX C

To Minutes of 9th Meeting of Medical Advisory Committee

PROGRESS REPORT TO THE API MEDICAL ADVISORY COMMITTEE  
BY THE SUBCOMMITTEE ON PERMISSIBLE CONCENTRATIONS

Dr. V. C. Baird - Chairman

March 18, 1949

PROGRESS REPORT

American Petroleum Institute Project  
at Harvard School of Public Health

Toxicological Reviews

During the past five months, tentative drafts of toxicological reviews on arsine and amyl acetate have been submitted to the Medical Advisory Committee for comments. Tentative drafts on acetic acid, betanaphthol, butyl acetate, cyclohexane, methylcyclohexane, mesitylene, amyl acetate, and hydroquinone have been revised in accordance with suggestions submitted by members of the Medical Advisory Committee and their associates.

Treatment of Burns

A great deal of time has been devoted to the preparation of a report summarizing current concepts on the treatment of burns. The report gives particular emphasis to information available concerning the pathological physiology of the seriously burned patient. Measures designed to correct the systemic disturbances are stressed in the discussion of therapy. We are anxious to receive suggestions from the Medical Advisory Committee that will help us improve this report so that it will prove to be of practical value to the physician who may not have the opportunity to review the vast and controversial literature on the subject.

Silica Catalyst Problem

A. Survey of Neighborhood Exposure to Catalyst Dust

We have requested information from members of the Medical Advisory Committee on the silica-alumina dust distribution in the neighborhood of their refineries. Two companies have submitted quite detailed information on the matter and other companies have told us that they were planning to carry out such studies.

The following data gives an indication of the magnitude of neighborhood catalyst distribution on the basis of surveys by two refineries:

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| Company | Maximum Dust Counts in Million Particles Per<br>Cubic Foot of Air<br>Miles Downwind from Stacks |      |      |       |      |
|---------|-------------------------------------------------------------------------------------------------|------|------|-------|------|
|         | 1                                                                                               | 2    | 3    | 4     | 5    |
|         |                                                                                                 |      |      |       |      |
| A       | .196                                                                                            | .054 | .049 | 0.368 | .229 |
| B       | 2.26                                                                                            | --   | 0.39 | 0.75  | --   |

Company A reports that 98.5 per cent of the catalyst leaving the stack is less than 5 microns in size and company B states that "Most of the catalyst lost from catalytic cracking operations is estimated to be less than 10 microns."

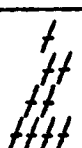
We have no definite information concerning the silicotic potency of the catalyst dust but even if we were to assume that it was as toxic as crystalline silica of equivalent particle size, there would be no hazard to the neighborhood from dust concentrations of the magnitude tabulated above.

During certain operations involving handling of the catalyst, workers in company A were exposed to concentrations as high as 120 million particles per cubic foot. Such concentrations, even though exposure is limited, are potentially hazardous and the employees should wear suitable respirators.

Some members of the Medical Advisory Committee have reported that they have no dust counts available and have requested our opinion as to the necessity for obtaining them. Certainly the dust counts reported to us by the two companies have not been alarming but conditions may differ among various refineries with regard to total stack discharge, stack height, and atmospheric conditions so that neighborhood exposure may be more intense. Because of the increasing public interest in atmospheric pollution, we believe that it is advisable for companies to have definite data on dust distribution regardless of whether an actual hazard is likely to exist.

#### B. Animal Experiments

The guinea pigs in the initial intraperitoneal experiment on the silicotic potency of fresh and spent silica-alumina catalyst died at the end of the third month of an epizootic that killed all the guinea pigs in our animal house. Gross examination of the peritoneal cavities gave the following results:

| Substance                        | Degree of Fibrous Reaction                                                            |
|----------------------------------|---------------------------------------------------------------------------------------|
| Glass Spheres (Silicate control) |  |
| Fresh Catalyst                   |                                                                                       |
| Stack Catalyst                   |                                                                                       |
| Quartz (Silica control)          |                                                                                       |

This relative degree of fibrosis was confirmed by histological study.

We are repeating the experiment with the hope that the guinea pigs will survive for nine to twelve months as we believe that the three-month observation period was too short to permit a definite estimate of the fibrotic potency of the catalyst samples.

Proposed Future Work

Because of the time devoted to preparing the review on burns, we have made little dent in the back log of toxicological reviews that have been requested. We propose to devote the next six months to preparation of as many of these reviews as possible. Since the list of requested reviews is very long, we will submit it to the members of the Medical Advisory Committee so that they can indicate the order in which they would like to have the reviews prepared.

It is our feeling that the sections of the toxicological reviews dealing with the chemical properties and the probable sources of contact in the petroleum industry have been rather unsatisfactory. Practically all the comments we have received concerning the tentative drafts have dealt with these sections. Unfortunately, judging by the comments, there does not seem to be complete unanimity of opinion among the technical people in the industry itself as to the chemical properties and the uses of some of the compounds for which toxicological reviews have been prepared.

We feel that the value of the reviews would be increased if the sections dealing with the chemical properties and the sources of exposure to the various compounds could be prepared by experts in the petroleum industry. We would be very grateful if the Medical Advisory Committee would select a group of technical advisors who would accept the responsibility for supplying us with information necessary to prepare these sections of the toxicological reviews.

Review on Cutting Oil Dermatoses

This review has been accepted for publication by the Journal of Industrial Hygiene and Toxicology and now is in galley proof. Publication has been deferred at Dr. Reeve's suggestion because of controversy concerning some aspects of the review. We hope that the matter can be settled at the Detroit meeting so that publication will not be delayed further.

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(Submitted by Albert O. Seeler, M.D., by letter dated March 18, 1949.)

APPENDIX D

To Minutes of 9th Meeting of Medical Advisory Committee

GOOD CUTTING FLUID PRACTICES AND HYGIENE\*

INTRODUCTION - There are two types of cutting and grinding fluids in general use. The first consists chiefly of petroleum oils in which varying percentages of additives are incorporated. The second is a compound of an emulsifier in an oil. The main function of the first is as a lubricant and secondarily as a coolant; whereas the soluble cutting-oil emulsion functions mainly as a coolant and secondarily as a lubricant. These cutting oils remove some of the heat generated by the action of the cutting (or milling, grinding, honing, etc.) tool on the work piece and in other ways improve the finish and increase tool or wheel life. They also serve as rust preventives on the finished work.

CAUSES OF DERMATITIS - As a result of long skin contact with oils, the opening of some of the sebaceous glands may become occluded. This obstruction may prevent escape of the gland secretions, which subsequently accumulate, harden and eventually cause local irritation. Infection may also play a part, but the germs causing the infection come almost entirely from the worker's own skin, rather than from the oil. More than fifty distinct and different types of harmful bacteria have been found on the arms and hands of the average clean healthy individual. These bacteria are perhaps the most important source of skin infections, and when cutting oil is used it acts as a carrier for the germs already upon the surface of the skin. Cutting fluids of petroleum derivation are sterile and will remain that way if not contaminated from outside sources. Most antiseptics added to cutting fluids in an effort to prevent bacteria contamination have proven ineffective. Some antiseptics may corrode the metal being worked, or may in themselves irritate the skin after prolonged use.

If the oil becomes contaminated in use, heat has been found to be the most effective means of sterilization.

Another cause to which dermatitis may be attributed is the presence of small chips, splinters or particles formed in working metal - grinding, cutting, polishing - which accumulate in the cutting fluid and are brought into contact with the skin of the worker, and by their abrasive action may cause slight cuts or scratches which afford entrance to germs. These particles of metal readily accumulate on the skin and on cotton waste used by workers to wipe the oil from their arms. Germs present on the skin may enter the scratches caused by this practice and lead to infection. Various devices for extracting these metal particles from the oil are on the market, but it should be remembered that such extraction alone will not prevent the dermatitis.

Other contributing factors to dermatitis are the defatting property of oils and especially the use of solvents, such as naphthas, kerosine, etc., often wrongly used for removal of cutting fluids from the hands and work, resulting in drying and cracking of the skin. Dry skin and skins of older people are most likely to be affected in this manner because the skin glands are not sufficiently active to replace the fat extracted from the skin by the solvents. Defatting of the skin is often further aggravated by the use of abrasive or highly alkaline soaps. Even bleaching powder sometimes is used to clean up after work. Skins that are naturally dry will not stand such cleaners without at least becoming chapped or fissured. These cleaners also abrade the skin, irritate it and reduce its resistance to dermatitis and infection.

Other constituents of cutting fluids may also play a part in promoting skin irritations. For example, the phenols, cresols, and other additives are usually not present in sufficient amounts to be primary irritants, but they may act as skin sensitizers.

It should be borne in mind that dermatitis from soluble oils is much less frequent than from non-soluble cutting oils. Soluble cutting oils are more readily and more completely washed from the skin.

The severity and frequency of the dermatitis depend on individual susceptibility. Oil acne shows a tendency to occur in hairy workers, presumably because of the numerous and well-developed hair follicles. Workers with fair complexion (blondes) seem to be more susceptible than the dark-skinned type. Workers with dry skins are more susceptible than oily-skinned individuals. Persons with a previous history of recurring skin eruptions are much more susceptible than those who have no such history. Oil acne may have an increased incidence in summer or hot weather.

LACK of PERSONAL HYGIENE is the most important factor. Clean, experienced workmen who do not permit their clothes to become soaked with the spray of cutting fluid or emulsion and who change their clothing frequently are much less likely to be affected. A secondary infection, resulting from bacterial action, may set in if the proper hygienic precautions are neglected. The handling of such cases usually is quite simple. Seriously affected persons should be protected or temporarily removed from the exposure, whereupon they usually recover rapidly.

PREVENTIVE MEASURES - The prevention of dermatitis among workers using cutting fluids or emulsions lies in the adoption of an adequate proper hygienic program; cleanliness of the person, of the machines, and of the oil. In the latter connection, spitting into cutting fluids or contaminating them with other bodily excretions should be PROHIBITED! Prompt dressing of wounds (cuts, scratches, abrasions, etc.) and infections and excluding infected workers from the cutting fluids used by others are also important preventive measures.

Personal cleanliness on the part of the worker is the most important single factor in prevention of dermatitis. Plenty of warm water, good soap and

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ample space should be provided for the worker because the regular and thorough removal of oil films adhering to his skin is the worker's first line of defense against dermatitis. Since thorough drying of the arms and hands is important, individual towels should be used. If cloth towels are used, to insure their cleanliness, proper laundering is essential. The use of paper towels is acceptable.

Suitable powdered or liquid soaps or cleaners should be placed in convenient locations in the washroom. The use of gasoline, kerosine, or other fat solvents and strong soaps should be prohibited for skin cleansing.

Where constant or frequent exposure is unavoidable, the use of aprons and sleeves made of impermeable material is desirable. If protective clothing is furnished, it must be properly serviced as needed. Before reissue to another worker, the equipment should be repaired, if necessary, and thoroughly cleaned. It is suggested that manufacturers' instructions be obtained and followed for the cleansing and disinfection of the protective clothing and equipment as the makers will know which cleansing methods and solutions will least affect the durability of their products.

Where indicated guards should be installed on the machines to prevent splashing or spraying and floor boards should be used to prevent prolonged contact of workers' feet with the oil. Mist collectors may be used where it is desired to remove oil mist. The machine should be kept as free from grease, oil and dirt as possible. Clean wiping rags should be provided for the worker at his machine for wiping oil from the hands.

Education of workers - It is necessary to educate the workers as to the needs for personal cleanliness and to report promptly if any skin trouble develops. Frequent inspection of the employees is recommended. The employee should be informed as to the causes of dermatitis and the methods of prevention.

Preplacement examinations are recommended. Workers with acne, dry skins, or history of chronic skin disease should not be assigned to work with

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cutting fluids. If an operator is known to be allergic or particularly susceptible to skin troubles, he should be assigned to other types of work.

Reconditioning used cutting fluids - The cutting fluid should be changed as often as necessary depending on the use, and either be discarded, or, if it is to be reused, it should be processed to remove solid particles and sterilized to destroy bacteria. Antiseptics should not be added to cutting oils by the user.

Reduction of bacterial content of cutting fluids can be accomplished by heat treatment; 140°F. to 160°F. for 30 to 45 minutes seems to be the usual method. While the destruction of the bacteria may not prevent oil acne, it does avoid spreading other disease organisms, particularly in soluble cutting oils.

Protective ointments - Cleanliness and other protective measures are much more important in the prevention of dermatitis than are protective ointments. However, there are a number of preparations on the market which may be found useful, but the combinations of ingredients are too numerous to list in this bulletin. It must be borne in mind that selection of the proper type of preparation is important and will be determined by whether protection is to be afforded against a water-insoluble or water-soluble oil.

TREATMENT FOR DERMATITIS - Individuals with dermatitis should seek medical advice.

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*Copy - Dr. Horton*

MEMO FOR API COMMITTEE MEETING

April 1, 2, 1949  
Detroit, Mich.

1. There are no further experimental results to report on any API samples.
2. It is hoped that we will be able to start tests on 175 to 200 samples about July 1. Order for cages and racks to house about 10,000 mice is to be placed this week, with 8 to 10 weeks delivery. The cost of these will be of the order of \$7,500.

Arrangements are being made to procure the male C3H mice from the Jackson Laboratory, Bar Harbor, Maine, which is now able to supply these again. They have not quoted a price as yet. In 1946, we paid 55 cents apiece for these mice. The present price will undoubtedly be higher. A year's supply of mice may cost from 6 to 10 thousand dollars.

*To begin*  
*1/49*

I have arranged to add Miss Templeton to the staff at a salary not yet agreed upon, but of the order of \$2,400. It has since been brought to our attention that Dr. Wm. E. Smith, who supervised the work done at Memorial Hospital, is available. Someone will in all likelihood have to be added for work of this type and a suitable sum allowed for in the budget. Dr. Horton has been making preliminary arrangements for chemical assistance in relation to the fractionation of active samples. This will also have to be included in the budget.

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3. Doctor Horton promised at the last meeting of the Subcommittee that I would present a bibliography of papers dealing with animal experimentation designed to reveal the manner in which the effects of a potent oil might be minimized by washing after various periods of contact, dilution with another inert oil, or the addition of an inhibiting material. The papers to which I referred in conversation with Dr. Horton are the following:

Twort, C.C. and Twort, J.M.; The Relative Potency of Carcinogenic Tars and Oils, J. Hygiene, 29: 373 (1929-30)

Twort, C.C. and Twort, J.M.: Utility of Lanolin as a Protective Measure Against Mineral Oil and Tar Dermatitis and Cancer, J. Hygiene, 35: 130 (1935).

Twort, C.C. and Twort, J.M.: J. Industrial Hyg. Toxicol., 13: 204 (1931).

Although the work done by the Tworts at Manchester was done at a relatively early period, and their methods of calculating potency from their data are unnecessarily involved and confusing, and, to some extent, questionable, it appears likely that their general conclusions may not be far wrong.

F.F.H.