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Manufacturing Chemists' Association

OF THE UNITED STATES
(FOUNDED 1872)
608 WOODWARD BUILDING
WASHINGTON 5, D. C.

WARREN N. WATSON
SECRETARY

L-184

MINUTES OF MEETING
LABELS AND PRECAUTIONARY INFORMATION COMMITTEE
Hotel Carter, Cleveland, Ohio, April 22 and 23, 1948

The meeting of the Labels and Precautionary Information Committee was called to order by Chairman W. N. Watson on Thursday, April 22, 1948, at 10:00 A.M. The following were present:

PLAINTIFF'S
EXHIBIT
CMA-277

W. N. Watson, Chairman	D. D. Irish
T. R. Aalto	W. A. Knapp
Carl Anderson	R. D. Minteer
A. Q. Butler	J. A. Noone
J. S. Coey	F. D. Sparre
A. G. Cranch	W. W. Sunderland
J. T. Fuess	J. B. Williamson (Alt. for R. W. Lahey)
S. J. Hill	Dr. John Zapp (Alt. for J.H.Foulger)

Guests: R. F. Hansen, General Chemical Division
G. E. Hinds, Sharples Chemicals, Inc.

I. MODEL STATE BILL

The second draft of the model state bill (Proposed Uniform State Act Governing the Labeling of Hazardous Chemicals), revised in accordance with comments received since review of the first draft, was read and discussed paragraph by paragraph. Suggestions were noted by Mr. Hansen for incorporation in the third revision, which will be referred to the legal advisory committee for treatment prior to submittal to the Executive Committee for approval.

II. LABELS

1. Warning Statement. The committee deferred until the next meeting consideration of a report on LAPI labels which should contain, in addition to a warning statement concerning removal of contaminated clothing, a statement on the removal of contaminated shoes; also a recommendation as to labels from which the clothing warning should be deleted.

2. Volatile Solvent. A report on the scope and limits of application of the phrase "volatile solvent" was deferred for consideration at the next meeting.

3. Reagent Chemicals. The committee, after review of proposed labels for reagent chemicals submitted at the February meeting as a test of general principles governing reagent chemicals, approved the condensed labels listed below. A label for ammonium bichromate was omitted so that producers may be rechecked in regard to the question of its flammable properties.

In approving these labels emphasis was laid upon space restrictions of small bottles which would limit the number of words feasible in legible type, and on the fact that labels on larger bottles could contain more information. (See General Principles for Reagent Chemical Labeling, LAPI Minute I-5, L-164).

Acetic Anhydride	Acetone
DANGER./ Causes Severe Burns Vapor Harmful	DANGER./ Extremely Flammable
Oxalic Acid	**Phenol**
POISON "Antidote"	DANGER./ Rapidly Absorbed Through Skin Causes Severe Burns POISON "Antidote"
Sodium Hydroxide	
WARNING./ Burns Skin and Eyes POISON "Antidote"	

Article on Reagent Chemicals. Reference was made to copy of a letter dated March 31 from J.T. Fuess on behalf of the Reagent Chemicals Subcommittee to W. J. Murphy of "Chemical and Engineering News" protesting publication of the article "Health Hazards of Common Laboratory Reagents" on grounds of inaccuracies and misleading statements. This letter was attached to the docket for the April meeting.

4. Rubber Chemicals. Mr. Hill agreed to report on the conclusions reached at the second meeting of the Rubber Chemicals Subcommittee, and on labels adopted to date. It was agreed that these labels should not be included in the reprint of "Warning Labels."

5. Nitrocellulose. The committee deferred until the next meeting consideration of a revised label for wet nitrocellulose in drums (containing less than 12.4% nitrogen).

6. Anhydrous Hydrofluoric Acid. The following label, submitted to the committee on a mail ballot dated March 22, was referred back to the AHF Committee for reconsideration of the phrase

"Store away from direct heat and below 165°F.":

Hydrofluoric Acid, Anhydrous

DANGER./ EXTREMELY HAZARDOUS LIQUID AND VAPOR
CAUSES SEVERE BURNS WHICH MAY NOT BE
IMMEDIATELY PAINFUL OR VISIBLE

Do not get in eyes, on skin, on clothing.
Do not breathe vapor.
Store away from direct heat and below 165°F.

UNLOAD ONLY IN ACCORDANCE WITH PRACTICE RECOMMENDED IN MANUFACTURING CHEMISTS' ASSOCIATION MANUAL H-2. Read also M.C.A. Safety Data Sheet Number SD-22. Copies furnished on request.

First Aid

In case of contact or suspicion of contact, remove all contaminated clothing at once; immediately flush skin or eyes with plenty of water for at least 15 minutes; pay particular attention to skin under nails. Apply magnesia-glycerin paste to skin after washing. Get medical attention. Wash clothing before reuse.

7. Aqueous Hydrofluoric Acid. A proposed revision of the label for Aqueous Hydrofluoric Acid was deferred for consideration at the next meeting.

8. Labeling of Repackaged Products. At the last meeting of the LAPI Committee nearly one hour was devoted to proposals of the Safety Research Institute for revision of the carbon tetrachloride label for use on household packages. The Chairman reported that Mr. Low, in a letter dated February 25, suggested that the matter be dropped by the LAPI Committee.

9. Methanol Label. Members were advised that the Chemical Products Agreements Committee, U. S. Public Health Service, had approved for use under the agreements with the Surgeon General the revised methanol label adopted by the LAPI Committee in February (LAPI Minute I-13, L-180). A copy of the letter of the USPHS, dated March 25, was attached to the docket for the April meeting.

10. Insecticide Labeling. The committee reviewed the preface of Supplement I to Manual L-2, entitled "Illustrative Warning Labels for Economic Poisons," and approved the preface following incorporation of certain revisions. A copy of the approved text is attached to these minutes as Attachment A.

The committee also approved, after review, the revised draft of caution labels for economic poisons. The chairman was requested, in accordance with the committee's desire to cooperate with the Department of Agriculture, to submit copies of the Supplement and of the caution labels to Dr. W. G. Reed, Chief, Insecticide Division, Department of Agriculture, and to ask for a conference with the Insecticide Subcommittee within a week.

11. Standardization of Signal Words. The committee deferred until the next meeting consideration of the report of Dr. J. H. Foulger dated March 17 on standardization of signal words used on LAPI labels. A copy of the report was attached to the docket for the April meeting.

11-a. Rating System for Choice of Signal Words. The report of Dr. W. A.Knapp on a "Rating System for Choice of Signal Words" also was deferred until the next meeting. A copy of the report was sent to members by Dr. Knapp on April 16.

12. Extension of Toxicological Tests. In the absence of Dr. Foulger no action was taken on the suggestion made at the February meeting with reference to extension of his toxicological tests.

13. Color Code for Mineral Acids. No action taken.

14. Cyanide - First Aid Treatment. Representatives of the three producers of cyanides submitted the following revised first aid treatment for Cyanide, which was unanimously approved. It was also agreed that the revised first aid treatment should be used in the recommended label for Acrylonitrile.

Cyanide

☠ POISON ☠

ANTIDOTE AND FIRST AID

Carry patient to fresh air. Have him lie down. Remove contaminated clothing but keep patient warm. Start the following first aid treatment immediately and call a physician.

IF PATIENT IS BREATHING

Break an amyl nitrite pearl in a cloth and hold lightly over nose for not more than 20 seconds repeating every 5 minutes for 25 minutes if recovery is not forthcoming. Give oxygen inhalation between amyl nitrite administrations.

(Label continued on next page)

IF PATIENT HAS STOPPED BREATHING
Give artificial respiration until breathing starts. During artificial respiration have assistant administer amyl nitrite pearl as above.

IF PRODUCT HAS BEEN SWALLOWED AND PATIENT IS CONSCIOUS OR WHEN CONSCIOUSNESS RETURNS
Give one pint of 1% sodium thiosulfate solution (or soapy water or mustard water) by mouth every 15 minutes until vomiting occurs. Administer amyl nitrite as above.

NEVER GIVE ANYTHING BY MOUTH TO AN ~~UNCONSC~~ UNCONSCIOUS PERSON.
In all cases keep patient quiet and warm until a physician arrives.

III. LABEL ADHESIVES

Mr. Minteer and Dr. Irish showed samples of labels on metal that had been submitted for 139 hours to the exposure meter test. Mr. Minteer advised that he hoped to supplement this progress report with a final report at the next meeting of the committee.

IV. DEFINITION OF CLASS B POISONS

The chairman advised that the proposed new definition of Class B Poisons is under careful review by the technical container committees.

V. "WARNING LABELS"

Report of Subcommittee. The report of the subcommittee on a revision and reprint of "Warning Labels" was approved as follows:

1. The Manuals should be reprinted. This will require some time and since we understand that the stock of the present manual is very limited it would be desirable to proceed at once with this work, setting January 1949 as the final deadline.

2. It is recommended that the revised Manual be printed on a page size $6\frac{1}{2}$ x $9\frac{1}{2}$ and be plastic bound.

3. It is considered desirable, if at all possible, to include in the manual four center pages of sample labels in color.

4. The revised Manual should include the report on insecticides and labels therefor. This should preferably be a separate section.

The committee decided that action on this recommendation should be deferred until clearance of the report with the Department of Agriculture.

5. The Subcommittee feels that the definition of "poison" should be revised. The present definition has not been too generally accepted and is seriously lacking in that it does not provide methods of test. A new definition similar to that in the Economic Poison Act which includes methods of test would be preferable.

> A subcommittee consisting of Drs. Foulger, Cranch and Zapp was appointed to prepare a new definition of "poison."

6. The discussion of the treatment of mixtures under General Principles should be expanded. This might be done somewhat along the lines of the proposed introduction for the insecticide section.

7. The Manual should include a notice of approval by the Surgeon General's Office of each label so approved.

8. It should also include with each appropriate label reference to the availability of a safety data sheet when such is available.

9. When the word "poison" is included on a label it is recommended that a footnote be added to indicate the reason for the use of that word. This seems rather important since the Committee has recommended against the use of this word generally but has specified it in a number of cases and the reasons for this are not generally clear.

10. The Editorial Board will require time for revision and preparation of the Manual. In order to meet the deadline set, it is important that all proposed revisions be presented and acted upon, at least in principle, at this meeting. A letter was therefore sent to each member of the Committee requesting that all proposals for changes be presented at this meeting.

Other recommendations. Other recommendations approved by the committee are:

1. The preface should contain a paragraph on container handling, with specific examples, such as "Completely drain carboy before returning."

2. There should be a reference to M.C.A. publications on containers, such as paper bags, fiber containers, steel drums, and tank cars.

3. The chairman should request the chairmen of container committees to submit specific suggestions in regard to material for the paragraph indicated in (2) above.

Warning Statements "Avoid" and "Do not". A member of the legal advisory committee raised the question that if a label contains statements to "avoid" or "do not" do certain things, there is an implication that all important hazards are covered; consequently a producer

might be liable if he overlooked some hazard. This suggestion was discussed at length and it was concluded, after careful review, that a little more emphasis should be placed upon the statement of hazards and a little less on the "avoid" and "Do not" statements; however, it was agreed that it would seriously detract from the utility of a caution label to simply state the hazard and discontinue the "Avoid" and "Do not" statements. Furthermore, it was felt that it would be inconsistent to omit these statements at this time.

Deadline date for changes. Members of the committee agreed to have their suggestions for any changes in "Warning Labels" in the hands of Chairman Fuess not later than June 1, in order that his subcommittee may proceed with preparation of the revision and have it ready for final action at the next meeting of the committee.

Addition to subcommittee. Mr. F. Bartenstein of Merck & Co. was added to the membership of the subcommittee on revision of "Warning Labels," which also includes J. T. Fuess, chairman, S.J. Hill, and J. B. Williamson.

State Regulations. The chairman was requested to advise the California and Oregon State authorities concerned with the administration of their respective caution label regulations of the contemplated revision of "Warning Labels."

VI. MISCELLANEOUS

1. Classification of Fluorides under ICC Regs. No action taken.

2. Ammonium Nitrate Caution Label. It was reported that the M.C.A. Ammonium Nitrate Technical Committee has approved the following caution label, which was reviewed by the LAPI Committee at the October 1947 meeting and suggestions made (LAPI Minute I-24, L-170):

Ammonium Nitrate Fertilizer

Keep away from heat and open flame -- DO NOT SMOKE
Store away from materials which will burn.
In case of fire, flood with water.
Burn empty bags promptly in open - a few at a time.
Place broken or torn bags and contents in overslip bags.
Sweep up and dispose of all spilled material immediately.

The M.C.A. Ammonium Nitrate Technical Committee includes all U.S. producers of the fertilizer grade, and all producers except one have indicated that they are ready to adopt the uniform label. The single exception is delaying until Part III of the report of the Interagency Committee has been completed.

3. National Chemical Exposition. The chairman referred to a letter from the Industrial Conference Committee for the Fifth National Chemical Exposition to be held in Chicago next October, and to the request that a member of the LAPI Committee address a forum on "Control of Hazardous Chemicals and Materials." A canvass of the members indicated that none of them is in a position to give a talk on the work of the committee at that particular meeting.

4. Army-Navy Medical Procurement. It was reported that there has been a relaxation of the Army-Navy Medical Procurement requirement for LAPI labels on small containers, and it was suggested that a member or members of the Reagent Chemical subcommittee make direct contact with the proper officials at the Brooklyn office.

5. New Member. It was agreed to invite Mr. W. W. Sunderland to become a member of the LAPI Committee.

6. Next Meeting. It was agreed that the next meeting should be held at Rochester, N. Y. on Monday and Tuesday, September 20 and 21, 1948, with headquarters probably at the Rochester Hotel.

VII. ADJOURNMENT

The meeting adjourned on Friday, April 23, 1948, at 5:45 P.M.

W. N. WATSON
Chairman

Minutes subject to approval

Lapi Committee
April 22-23, 1948

Attachment A

SUPPLEMENT I To Manual L-2
Illustrative Warning Labels For Economic Poisons

Adopted 1948

Preface

The Manufacturing Chemists' Association has issued this Supplement as a guide to its members in preparing label warnings for economic poisons. It is intended to fill a timely need in view of the enactment in 1947 of the Federal Insecticide, Fungicide, and Rodenticide Act and of recent revisions in State Laws affecting economic poisons.

The Supplement contains suggested label warnings for a selected group of chemical products commonly used as or in the formulation of insecticides, fungicides, rodenticides, and herbicides, and presenting hazard to man, useful animals or useful vegetation. The warnings are based on the principles setforthin Part I of Manual L-1, "A Guide for the Preparation of Warning Labels for Hazardous Chemicals". The Reader should first carefully study these principles before attempting to adapt any suggested wording to his economic poison product.

The principles apply primarily to the labeling of hazardous chemicals intended for industrial consumption, many of which are also used for processing into consumer forms of economic poisons. Labels for consumer packages of economic poisons require consideration of additional factors since they will be handled, stored, and used differently than those intended for industrial consumption. Also, consumer labels should include warnings not only for hazards to man, but to domestic animals, useful invertebrates, and useful vegetation.

A producer or distributor of an economic poison should acquaint himself with all laws governing economic poisons, including those of the Federal Government, states, territories, and other political subdivisions, and with any applicable statutes, ordinances, or regulations affecting labeling in general. Statements suggested in this Supplement should be used in addition to or in combination with any other wording required by law.

Because of the large variety of economic poison formulations in which the ingredients may be contained in various concentrations or combinations it has been impossible to suggest wordings in this Supplement applicable to all cases. In general, the range of concentrations to which the suggested wording applies is stated. Where other concentrations or combinations are involved, the statements may be suggestive of the hazards to be considered. Products formulated from two or more constituents may have properties that vary in kind or degree from those of the constituents; any warning statement should be based on the properties of the finished formulation.

Furthermore, it has not been practical to propose statements for all special packages, extraordinary uses or other unusual circumstances surrounding individual products. Each statement is designed for the normal and customary use of a particular economic poison. Each labeler of an economic poison should recognize that his product must be treated individually, in the light of its own characteristics, including among others, quality, package sizes and types, channels of

distribution, normal storage and transportation conditions, intended consumers, and intended uses.

The Federal Act requires the word "Poison" and the skull and cross bones on all products deemed "highly toxic to man". Regulations under the Act provide that a product may be highly toxic to man by oral intake, inhalation or skin absorption. In Manual L-1 poison is defined to include only products capable of causing acute effects by oral intake or inhalation. Not only do the regulations add a third mode of entry into the body, namely, skin contact, but they also change the limits within which a "Poison" may jeopardize life. The word "Poison", when used on economic poisons under the Federal Regulations, thus has a broader meaning than that given in Manual L-1 for ordinary industrial chemicals.

To the ultimate consumer the word "Poison" on a label, even when associated with other warning statements, may not indicate the modes of entry by which the product is poisonous. The term "Poison" is commonly understood by the layman to mean toxic by oral intake only. To avoid personal injuries that may arise by misinterpretation of the term, labels on consumer packages of economic poisons highly toxic to man should specify the modes of entry into the body by which the product is poisonous.

Examples:

Warning: Poisonous If Swallowed.
Danger: Poisonous by skin contact.
Caution: May be poisonous if inhaled.
Danger: Poisonous if swallowed or by skin contact.

It is to be noted that the word "Poison" never takes the place of a signal word and that any one of the signal words "Danger", "Warning" or "Caution" may be applicable even when a product is poisonous. The selection of the appropriate word will depend not only on the degree of toxicity of the product, but more particularly on the risk of injury normally presented.

The word "Poison" (or its derivitives) should be reserved exclusively for those products coming within the definitions of the Federal Act as "highly toxic to man" except where it may be required by other laws or regulations such as the Federal Caustic Poison Act, Surgeon Generals Agreements, etc. For products that are less toxic statements like the following are preferred:

May be fatal if swallowed
Harmful if inhaled or swallowed

The label examples in this Supplement are confined mainly to measures necessary to prevent injuryto man and domestic animals arising out of the ordinary handling, storage or use of a product. Additional warnings may be indicated by the particular form or manner in which a product is sold or the circumstances surrounding its use. There also may be other hazards to man or animals which can arise only from specific uses for which directions are given in the labeling. Frequently an economic poison may also be hazardous to useful invertebrates or useful vegetation or from residues remaining on edible vegetation. The omission of reference to these hazards from any statement in this Supplement does not imply that they may be disregarded. As a rule such warnings are properly incorporated in directions for use. Even though they may be separated from the principal warnings they should, nevertheless, be prominently displayed. Examples:

Do not use this powder on drainboards, shelves or other places where contact with food is likely.

Avoid use during flowering and pollination periods.

Do not allow spray to come in contact with garden plants.

Do not consume fruits or vegetables until residue is removed.

An important principle of good labeling is to avoid the promiscuous use of precautionary statements since they tend to detract from the prominence and importance which should be given to the vital warnings. Common sense indicates certain fundamental precautions in the handling of nearly all household and farm supplies and a label statement cannot substitute for it. Phrases such as "Keep away from children and domestic animals" and "Avoid contamination of food" should be necessary only where the inherent high toxicity of the product, special use of the material, the size of the package, likelihood of mistaken identity, or actual use experience strongly indicate their need.

Where the inherent hazard is of minor significance it may be adequate to include on the label a simple statement such as:

CAUTION: Avoid prolonged Inhalation.

The absense from this Manual of a label recommendation for a specific economic poison should not be interpreted as meaning that the product requires no precautionary information.

Rating System
Insecticide Labeling

Hazard	Point Rating		Explanation
Basic toxicity			
	25	-	Highly toxic to man via Federal Insecticide Act regulations.
Flammability			
	50	-	Flash point below 20°F
	15	-	" " " 80°F
	5	-	" " " 140°F
Vapor Hazard			
	25	-	Equil. conc at rm. temp. highly toxic
	15	-	Vapor pressure at rm. temp. over 10 mm. (13,000 ppm)
	5	-	" " " " " " 1 mm. (1,300 ppm)
Absorption Hazard			
	25	-	If readily absorbed thru skin
Corrosion to Skin or Mucous Membranes			
	25	-	If highly corrosive to skin
	15	-	If markedly irritating to skin
	5	-	If only minor skin irritation
Oxidizing Agent			
	25	-	If oxidizing agent
Physical form and Conditions of use			
	(a) 10	-	If liquid, or formulated for dusting purposes, or directions for use are such as will result in marked exposure to skin
	(b) 10	-	If attractive nuisance (clear liquid, likelihood of mistaken identity, used in baits etc.)
	(c) 10	-	If used as fumigant

Note: Although the above categories include all hazards which may reasonably be encountered in the use of a product it is realized that special and peculiar properties of a material may dictate a greater or less hazard than is indicated by the scoring system. Thus allergic responses, sensitization, cumulative effects from more than a single chemical in a mixture and particularly insidious physiological responses may require a stronger signal word than would appear to be necessary by strict adherence to the system. Similarly, rapid detoxification in the body or conclusive evidence, for example, that absorption thru the skin produces no serious toxic effects may justify a milder signal word. Cases of this type are expected to be very few in number and should be decided only on a broad basis of fact and not upon an individual experience.

Tentative Limits for Signal Words

20-40 Caution!
45-70 Warning!
75 up Danger!

Discussion of Rating System

It is evident from long experience that the hazards of handling a material depend basically upon toxicity, physical and chemical properties and conditions of use. These factors may be subdivided and a greater or less importance placed upon each. In the above outline point ratings have been placed on each hazard of known importance. Maximum point ratings (25 pts) on each hazard are equal with the exception that extremely flammable materials are given a 50 pt rating. This is justified by the fact that normal precautions may be ineffective and the damage resulting from accident may extend far beyond the individual working with the material.

It is visualized that in some cases it may be impossible to assign ratings for a given hazard because information is lacking. In this event it is suggested that the score be prorated on the basis of the first six hazards as follows:

Hazard	1	2	3	4	5	6	7
Possible Score	25	50	25	25	25	25	30
Actual Score	0	15	25	no data	0	0	10

$$\frac{\text{Actual Score, 1-6} = 40}{\text{Possible Score, 1-6} = 150} = \frac{X}{175}$$

$$X = 47$$

Signal Word Rating = 47 + 10 = 57 (Warning)

Basic Toxicity

In the absence of complete toxicological data on most compounds now in use and with the certain knowledge that this deficiency cannot be made up in the very near future one level of toxicity only has been assigned. Of three routes of ingestion it is reasoned that oral intake is in the great predominance of cases a voluntary action and the amount ingested is frequently far in excess of the toxic limit regardless of the toxicity level of the material. Any toxicity which might result from the involuntary routes of ingestion, namely skin absorption and inhalation are taken care of under items (3) and (4) wherein the point system is applied based on opportunity for ingestion irrespective of the basic toxicity of the chemical.

Flammability

The ratings under this heading are quantitative and there should be no disagreement except as to the absolute values applied to flash points.

Vapor Hazard

This category is in effect a slight extension of the regulations and may re-

rial	1	2	3	4	5	6	7	Total	Signal
itrile	25	15	25	0	15	0	20 (a-c)	110	Danger
0%)	25	0	0	0	5?	0	20 (a-b)	50	Warning
metic (5%)	0?	0	0	0	5?	0	0	5	Caution
cals, liq (2%)	25	0	0	0	15	0	10 (a)	50	Warning
Hexachloride	0	0	0	25?	15	0	10 (a)	50	Warning
cyanide	25	0	25?	25?	5	0	10 (c)	90	Danger
disulfide	25	25	25	0	15	0	20 (a-c)	110	Danger
tetrachloride	0?	0	25	0	5	0	30?(a-b-c)	60	Warning
roform	0?	0	25	0	5	0	30?	60	Warning
opicrin	25	0	25	0	15	0	20 (a-c)	85	Danger
tar creosote	0	0	0	0	5	0	20 (a-b)	25	Caution
ols	0?	0	25?	25	25	0	10 (a)	85	Danger
	0	0	0	25?	5	0	10 (a)	40	Caution
Dichloroethyl Ether	0?	0	25	0	5	0	30 (a-b-c)	60	Warning
Dichlorophenol	0?	0	0	25?	25	0	0?	50	Warning
2,4 D	0	0	0	0	15	0	0?	15	Caution
thylene dibromide	0?	0	25	0	15	0	20 (a-c)	60	Warning
Ethylene dichloride	0?	15	25	0	15	0	10 (a)	65	Warning
Ethyl Mercury Chloride	25	0	25	25	15	0	0	90	Danger
rmaldehyde	25	0	0?	0	15	0	20 (a-c)	60	Warning
TP	25	0	25	25	15	0	10 (a)	100	Danger
drocyanic Acid	25	0	25	0	15	0	10 (c)	75	Danger
ead Arsenate	25	0	0	0	5	0	10 (a)	40	Caution

Note: Letters in column indicate use conditions for which points ratings were applied.

Letter signed J.T.Fuess, as
Ch. of Reagent Chemicals
Subcommittee of LAPI of MCA

COPY

March 31, 1948

Mr. Walter J. Murphy
Chemical and Engineering News
1155 16th Street N.W.
Washington 6, D. C.

Dear Sir:

The publication in the February 2, 1948 issue of "Chemical and Engineering News" of the article "Health Hazards of Common Laboratory Reagents" by Prudence M. Van Arsdell is most disturbing to our Committee which has concerned itself for the last three years with the problem of safety in the use and handling of chemicals. It is felt that this article, instead of serving its intended purpose, is more likely to be harmful and dangerous. Criticism should perhaps be directed primarily against the editors of the magazine for the publication of an article on such an important subject without definite approval by competent authorities in the field, and in fact in direct opposition to strong recommendations by such experts against its publication. It is indeed unfortunate that the harm done by the publication of this article cannot be entirely counteracted by any subsequent publication or explanation.

The criticism of an article in general terms only is perhaps unfair to the author, but detailed criticism of this article would require the writing of a thesis. We would like, however, to present some general comments (some of which I understand were presented in 1946 in opposition to the publication).

1. The article is evidently simply a literature review of an essentially medical subject by an obviously incompletely informed layman. The presentation of such an article in a magazine having the reputation and circulation of "Chemical and Engineering News" provides the article with prestige greater than would normally accrue to it by virtue of the professional standing of the author. Since this subject deals with a field of knowledge differing from that usually appearing in the magazine, particular care should be exercized by the editors in assuring themselves of the professional standing of the author and in abiding by the opinions of recognized authorities in that field. These points appear to have been completely overlooked or disregarded.

2. As is often the case of a "collected" article on a professional subject by a non-professional person, serious mistakes which have entered the literature have been repeated and obsolete methods recommended.

3. Description of signs and symptoms of injury as included in the table are inaccurate in fact, and very often misleading in terminology.

4. Too much emphasis has been placed on oral ingestion, with little on inhalation, an equally important and often lesser known hazard.

5. The first aid procedures recommended are a peculiar mixture of actual first aid and suggested medical treatmnt. They are so vague in their detail that in many cases they could actually cause more injury to the patient than no first aid at all. They include procedures which have long ago been discarded by those having knowledge in the field of toxicology and the treatment of poison cases. They are in fact quite often dangerous recommendations.

6. Compounds are classified by groups, which for action and treatment is not considered safe by recognized authorities.

7. Statements in the article indicate a serious lack of toxicological orientation on the part of the author.

8. There are obvious inaccuracies in the article.

9. The article fails to distinguish clearly between acute and chronic effects.

10. The article deals with inorganic chemicals primarily, with little attention to the organic reagents which are of extreme importance.

11. The article attempts to cover in 3½ pages of text and 2 of table, a subject on which a whole encyclopedia could be written.

Our work as the Labels and Precautionary Information Committee, one of the technical committees of the Manufacturing Chemists' Association, is concerned with the presentation of accurate information principally by means of labeling, on the hazards, protective measures, and in many instances first aid measures for specific chemicals. (If you have not seen our Manual, I shall be glad to send you a copy.) In our work we have had the assistance and expert advice of the best authorities in the field of industrial medicine and toxicology. In spite of this, difficulty is continually encountered in preparing in brief form accurate information on immediate treatment of injury. It was realized early that general statements based on groups of compounds could not be used, but that each chemical had to be treated individually. In all cases, accuracy has been considered the major objective.

These efforts will be of little avail and the user will certainly become more confused and possibly seriously injured if reputable journals published by societies such as the American Chemical Society with their reputation sponsor articles by laymen with no professional standing on such complex subjects as this.

On these grounds we feel that a very strong protest must be registered against the action of the editors of "Chemical and Engineering News" in publishing this article, particularly in the face of recommendations against its publication by those who are authorities in the field discussed. This protest is not that of the writer alone, but constitutes a summary of opinions presented to me as subcommittee chairman with the request that they be incorporated into a single comment from the Committee. (signed) J.T.Fuess,Ch.,Reagent Chem.Subcommittee of LAPI, M.C.A.

HYDROFLUORIC ACID, AQUEOUS

DANGER./ Hazardous Liquid and Vapor
Causes Severe Burns Which May Not
Be Immediately Painful or Visible

Do not get in eyes, on skin, on clothing.

Do not breathe vapor.

READ MANUFACTURING CHEMISTS' ASSOCIATION SAFETY DATA SHEET NO.____. COPIES FURNISHED ON REQUEST

FIRST AID

In case of contact or suspicion of contact, remove all contaminated clothing at once. Immediately flush skin or eyes with plenty of water for at least 15 minutes. Pay particular attention to skin under nails. Apply magnesia-glycerin paste to skin after washing. Get medical attention. Wash clothing before re-use.

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FEDERAL SECURITY AGENCY
U.S. PUBLIC HEALTH SERVICE
WASHINGTON 25, D.C.
MARCH 25, 1948

Mr. Warren N. Watson, Secretary
Manufacturing Chemists' Association
608 Woodward Building
Washington, D.C.

Dear Mr. Watson:

I have contacted the members of the Chemical Products Agreements Committee relative to the advisability of revising the label on methanol as set forth in the agreement revised in 1935. The members approve the following revision of the label, however the remainder of the agreement of 1935 remains unchanged.

METHANOL

DANGER: FLAMMABLE
VAPOR HARMFUL
MAY BE FATAL IF SWALLOWED
CANNOT BE MADE NONPOISONOUS

☠ POISON ☠

ANTIDOTES

IF swallowed: Give a tablespoonful of salt in a glass of warm water and repeat until vomit fluid is clear. Give two teaspoonfuls of baking soda in a glass of water. Have patient lie down and keep warm. Cover eyes to exclude light. CALL A PHYSICIAN.

If splashed in the eyes: Immediately flush with water for at least 15 minutes. Get medical attention.

The word "flammable" may be omitted from the label if the methanol mixture has a flash point above 80oF.

This new label will be obligatory one year after date of notice, but it would be optional within the year. In other words, the old label could be used for at least one year.

It is anticipated that you will contact the signers of the old agreement and also submit the new agreement to new companies that will be in operation.

Sincerely yours,

/s/ J.G. Townsend, Medical Director
Chief, Industrial Hygiene Division

JGT:DLH

March 17, 1948

To: Members of the LAPI Committee

From: John H. Foulger, M. D.

Subject: Standardization of Signal Words used on LAPI Labels.

The LAPI Committee, through its Sub-Committee on Economic Poisons, has been asked by Dr. W. G. Reed of the Insecticide Division, U. S. Department of Agriculture, to present, if possible, at least semi-quantitative criteria for use of the signal words, "Danger, Warning, Caution." Since this request is virtually a challenge to the LAPI Committee to demonstrate its consistency in allocation of signal words, it seemed important to analyze existing LAPI labels at once, in order to disclose any existing pattern which might be used as a basis for standardization.

The attached pages show the result of this analysis in the form of a Code, and its application to 139 labels approved by the LAPI Committee in its published Manual L-2 and Supplement A, dated June 1947. It is found that the Committee has been surprisingly consistent. Of the 139 labels considered, the Code gives signal words differing from the approved labels in only 18 cases. Of these, the changes from Manual to Code are:

Manual		Code	No. of Labels	
Warning	increased to	Danger	4	Total increased
Caution	increased to	Warning	2	
No signal word	increased to	Caution	1	7
Warning	decreased to	Caution	11	Total decreased 11

Thus, in the majority of cases in which the Committee's decisions depart from the Code, the Committee has leaned toward greater protection of the user of the labelled chemicals.

JHF:AMcB

DANGER - D	WARNING - W	CAUTION - C
D 1. Materials which are Extremely Flammable (flash point 20° F. or below) or are explosive.	W 1. Flammable materials other than those in Class D.	C 1. Oxidants or other materials which may spontaneously cause fires.
D 2. Materials which are Flammable (flash point 20° - 80° F. inclusive) and have a generally accepted Maximum Allowable Concentration (MAC) in the atmosphere not greater than 30 p.p.m.	W 2. Materials with a generally accepted MAC greater than 30 p.p.m. but not greater than 100 p.p.m.	C 2. Materials with a generally accepted MAC above 100 p.p.m. but not greater than 500 p.p.m.
D 3. Materials with a generally accepted MAC not greater than 30 p.p.m. and are under pressure in containers.	W 3. Materials which are absorbed through the skin, which have a toxicity not clearly defined, but which are considered toxic by analogy with compounds of closely related chemical structure. (Mostly dye intermediates.)	C 3. Materials causing burns or irritation of the skin and mucous membranes, other than those in Class W 4.
D 4. Materials having a generally accepted MAC not greater than 30 p.p.m., or, if dusts, not above 0.2 mg/cubic meter and which are rapidly absorbed through the skin or cause severe burns or severe irritation of skin and mucous membranes.	W 4. Corrosive acids and salts; caustic alkalis.	C 4. Materials which present no outstanding fire or toxicity hazards, but which should obviously be handled with care.
D 5. Materials known to be highly toxic by any route or which are extremely corrosive or which on contact with acids or organic matter generate highly toxic gases.	W 5. Materials known to be moderately toxic when taken by mouth.	

Page in Manual L-2		Code	Manual L-2
12	Acetaldehyde	D 1	D
12	Acetic acid - Glacial	D 4	D
13	Acetic acid - 80%	D 4	D
13	Acetic acid - 56% and 70%	W 4	W
13	Acetic acid - 28%	C 3	C
14	Acetic anhydride	D 4	D
14	Acetone	D 1	D
14	Acetonyl acetone	C 4	C
14	Acetyl chloride	D 2	D
15	Acrylonitrile	D 2	D
16	Allyl alcohol	D 2	D
16	Allyl chloride	D 2	D
16	Ammonia aqua	W 4	W
17	Ammonia anhydrous	W 4	W
18	Ammonium bichromate	W 4	W
18	Amyl acetate	C 2	C
18	Aniline	D 4	D
19	o-Anisidine	W 3	W
19	p-Anisidine	W 3	W
19	Antimony trichloride	D 4	D
19	Aromatic industrial solvent	W 1	W
20	Aromatic industrial solvent	C 4	C
20	Arsenic trichloride	D 4	D
20	Barium nitrate	C 1	C
21	Barium oxide	C 3	C
21	Barium peroxide	C 1	C
21	Benzol	D 1	D
21	Benzidine	C 4	W
22	Benzoyl chloride	D 4	W
22	Benzyl chloride	W 2	W

Page in Manual L-2		Code	Manual L-2
23	Bromine	D 4	D
23	Butyl acetate (N)	C 2	C
23	Butyl alcohol (N or Sec.)	C 4	C
23	Butyl alcohol (Tert.)	W 1	W
24	Butylamine	W 1	W
24	p-tert. Butyl catechol	C 3	W
24	Butyl chloride (N)	D 1	D
24	Butyl ether (N)	C 4	W
25	Calcium cyanide	D 5	D
25	Carbon bisulfide	D 1	D
25	Carbon tetrachloride	W 2	W
25	Chlorinated naphthalene	C 3	None
26	Caustic soda	W 4	W
26	Chlorobenzene, mono	W 2	W
27	Chloroform	W 2	W
27	Chlorotoluene, mono	W 2	C
27	Chromic acid	W 4	W
27	Creosote oil	C 3	C
28	Cyanides, inorganic	D 5	D
29	Cresol	D 5	D
29	Cyclohexane	D 1	D
29	Cyclohexanol	W 2	C
29	Dichloroethylene	W 1	W
30	Dichloroethyl ether	D 5	W
30	Dichlorophenol	W 3	W
30	Diethylamine	D 1	D
31	Dioxane	W 1	W
31	Ethyl acetate	W 1	W
31	Ethyl bromide	C 4	W

ge in nual L-2		Code	Manual L-2
31	Ethyl chloride	D 1	D
32	Ethylene chlorhydrin	D 5	D
32	Ethylene dibromide	C 4	W
32	Ethylene dichloride	W 1	W
33	Ethylene glycol monoethyl ether	C 4	C
33	Ethyl ether	D 1	D
33	Ethyl formate	D 1	D
33	Ethyl methacrylate monomer	W 1	W
34	Formaldehyde	D 4	W
34	Formic acid	W 1	W
35	Hydrochloric acid	W 4	W
36	Hydrocyanic acid	D 5	D
36	Hydrogen peroxide (above 25 not above 130)	C 1	C
37	Hydrogen peroxide (25)	C 1	C
37	Hydrofluoric acid, Aq.	D 5	D
38	Lead acetate	W 5	W
38	Maleic anhydride	C 3	W
38	Mercury bichloride	D 5	D
38	Methyl n-Amyl ketone	C 4	C
39	Methyl bromide	D 4	D
39	Methylene chloride	C 4	C
40	Methyl ethyl ketone	W 1	W
40	Methyl methacrylate monomer	W 1	W
40	Methyl isopropyl ketone	W 1	W
41	Mixed acid	D 4	D
42	Morpholine	C 4	W
42	b-Naphthylamine	C 4	C
42	Nitric acid	D 4	D

Page in Manual L-2		Code	Manual L-2
43	m-Nitroaniline	W 3	W
43	Nitrophenol, mono	W 3	W
44	Oleum	D 5	D
44	Oxalic acid	W 5	W
44	Paraldehyde	C 4	C
45	Pentachlorophenol	W 5	W
45	Pentachlorophenol - oil solns.	C 3	C
45	Petroleum naphthas	D 1	D
46	Petroleum naphthas	W 1	W
46	Petroleum naphthas	C 4	C
46	p-Phenetidine	C 4	C
47	Phenol	D 5	D
47	p-Phenylene diamine	C 4	C
47	Phosphoric acid	C 3	C
48	Phosphoric anhydride	W 2	W
48	Phosphorus	D 1	D
48	Phosphorus pentachloride	W 2	W
49	Phosphorus oxychloride	D 4	D
49	iso-Propyl acetate	W 1	W
49	Pyridine	W 1	W
50	Silver nitrate	W 4	W
50	Sodium chlorate	W 1	W
51	Sodium bichromate	W 4	W
51	Sodium fluoride	W 5	W
51	Sodium hydrosulfite	C 1	C
52	Sodium sulfide (granular)	D 5	D
52	Styrene monomer	C 2	W
52	Sulfur chloride	D 4	D

Page in Manual L-2		Code	Manual L-2
53	Sulfuric acid	D 5	D
54	Sulfur dioxide	D 3	W
54	Tetrachloroethane	D 4	D
54	Tetrachloroethylene	C 2	W
54	Toluene	W 1	W
55	m-Toluidine	W 3	W
55	Trichlorethylene	C 2	W
55	Trichlorophenol	C 3	C
55	Vinyl chloride	D 1	D
56	Xylene	W 1	W
56	Zinc chloride	C 3	C
Supplement A	Barium fluosilicate	W 5	W
"	Sodium fluosilicate	W 5	W
"	Calcium arsenate	W 2	W
"	Chloral	D 4	D
"	Chlorine	D 5	D
"	Dimethyl sulfate	D 4	D
"	Dry ice	C 3	W
"	Hexaethyl tetraphosphate	D 5	D
"	Magnesium arsenite	W 2	W
"	Nitrogen dioxide	D 5	D
"	Paraformaldehyde	W 2	W
"	Paris green	W 5	W
"	Perchloric acid solution	D 1	D
"	Zinc arsenite	W 5	W
"	Zinc arsenate	W 5	W

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