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RECOMMENDATIONS FOR THE HANDLING AND
MIXING OF ETHYL FLUID (AVIATION OR MOTOR) WITH GASOLINE

Issued under the authority of

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Date

Note: These Recommendations supersede all those which
may have previously been issued and should be
carefully studied and followed.

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or in a laboratory. A notice
of the mixing plant
RECOMMENDATIONS FOR HANDLING AND MIXING
ETHYL FLUID
(Aviation and Motor) with Gasoline

PART 1 GENERAL RECOMMENDATIONS APPLICABLE TO ALL MIXING OPERATIONS

A. REGULATIONS OF DIRECT CONCERN TO RESPONSIBLE OFFICIALS OF
DISTRIBUTING COMPANIES

The attention of the management of plants in which ETHYL Fluid is mixed with gasoline is directed to certain matters for which the management is responsible, and which are of fundamental importance in determining the degree of safety associated with the handling of the Fluid.

B. THE UTILIZATION OF ADEQUATE MIXING EQUIPMENT

Each mixing system must be built in precise accordance with drawings submitted by the distributing plant and approved by a representative of The Associated Ethyl Company. The arrangement is based upon drawings and upon specifications furnished by The Associated Ethyl Company. The specifications cover the essential hygienic and safety requirements.

C. THE SELECTION OF THE PERSONNEL FOR MIXING

1. Intelligent young men who can understand the instructions given to them, and who can be depended upon to carry them out with precision, should be selected to do the mixing and other necessary operations in the blending plant.

2. As few men should be used as are needed to do the work, and all must be instructed regarding the dangers of carelessness when handling ETHYL Fluid. All mixing or handling of ETHYL Fluid before it is mixed into gasoline is to be done by this same group of men.

3. The men selected shall be used in mixing only after and as long as they are approved as to physical fitness by a medical representative of The Associated Ethyl Company.

D. INSTRUCTION OF MIXING PERSONNEL

All men selected for mixing operations must be fully instructed in accordance with the particular type of equipment which is to be employed. Separate instruction booklets are issued covering the specific requirements of each type of plant. The basic safety regulations are included in part 2 of this booklet.

E. THE POSTING OF INSTRUCTIONS AND NOTICES AT THE MIXING PLANT

A placard containing detailed instructions to the men who carry out mixing operations, as applicable to each specific type of operation, shall be posted in a conspicuous place at the mixing plant

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or in a laboratory. A notice must also be posted forbidding the entrance to the mixing plant of all persons except those who have been authorized and taught to carry out mixing operations. This notice must be enforced, and the wash-room and plant must be kept locked except when in use.

F. THE AVOIDANCE OF IRREGULAR PRACTICES IN MIXING

Safety in commercial mixing operations is based upon the use of specifically designed and authorized mixing equipment under specified regulations with which workmen must be familiar. The management must be equally familiar with the details of regulations, and should refrain from any commercial arrangements or any orders to workmen which require or imply violation of the spirit or letter of the regulations.

G. PROMOTION OF SAFETY IN OTHER PLANT ACTIVITIES RELATED TO ETHYL FLUID

During the handling of Ethyl Fluid the safety of persons other than those engaged in the mixing operation is involved. These other activities require the attention of the management of distributing companies and attention is drawn to the separate specific instructions issued covering the following phases.

- (1) Transportation of Ethyl Fluid
- (2) The handling of Ethyl Fluid in laboratories
- (3) The cleaning of gasoline storage tanks which have ever contained leaded gasoline
- (4) The filling of small containers with leaded gasoline

PART 2 GENERAL INSTRUCTIONS WHICH MUST BE FULLY UNDERSTOOD BY ALL PERSONS ASSOCIATED IN ANY WAY WITH THE HANDLING OF ETHYL FLUID

- A. Ethyl Fluid is poisonous when it gets into the body. It may get into your body through your skin, or by way of dirty hands into your mouth, or may be breathed into your lungs when the vapor is in the air you breathe. The following directions will tell you how to work with Ethyl Fluid and yet keep it out of your body.

B. DESCRIPTION AND CARE OF EQUIPMENT TO BE USED BY MEN EMPLOYED IN MIXING PLANTS

1. In addition to two lockers, each person who works in the mixing plant must be furnished two sets of clothing, consisting of underwear, socks, outer clothing, and caps. In cold weather warm clothing must be provided as needed. Shoes or boots with safety toes, aprons, and gloves, all made of rubber, shall be supplied. The clothing and other equipment should be white, so that all stains or spots can be seen. The rubber apron and rubber gloves must be heavy enough to stand use without tearing. Neoprene or its equivalent is a satisfactory substitute for rubber. Canvas gloves may be used over the rubber gloves to protect them. Leather shoes must not be used.

2. Each person working in the mixing plant must be supplied with a gas mask which is equipped with a rubber face-piece covering the entire face, eyes, nose, and mouth (similar to the Tissot type) with eye-pieces of splinterless glass, a rubber breathing tube, and a canister separate from the face-piece, containing not less than 500 cc. of high grade activated charcoal.

3. The clothing and other equipment worn in mixing must be inspected after each period of use.

(a) The canister of the mask must be renewed after 100 hours of normal use, or at the end of six months, whichever is the shorter period. A record of the use of each canister must be kept. If, by reason of emergency, the mask should be used continuously for some hours in a high concentration of vapors of Fluid, the canister must be discarded.

(b) The mask must be examined thoroughly after each period of use and if contaminated it must be cleaned with kerosene, followed by soap and water. The face-piece should be washed off with soap and water after each period of use. When not in use the mask should be kept in a receptacle which will keep it clean, and the canister should be kept sealed to avoid absorption of moisture and other vapor.

(c) The outer clothing must be laundered if dirty or spotted with Fluid. If spotted with Fluid, it must be first rinsed repeatedly in kerosene, or in a non-inflammable dry-cleaning liquid, after which it should be laundered.

(d) Aprons, gloves, and boots or shoes must be cleaned with a quick-drying solvent if they show any stains of Fluid.

(e) Any rubber equipment which becomes spongy or weakened must be discarded.

C. HOW TO KEEP YOUR SKIN CLEAN

1. Do not wear your ordinary clothing while working with ETHYL Fluid. Put your own clothing in a clean locker and dress from the skin out in clean work clothing.

2. Do not put on any clothing which has not been laundered after being in contact with ETHYL Fluid.

3. When you finish working with ETHYL Fluid take off all your clothing, hang it up in a locker provided for the purpose, and bathe carefully with soap and hot water.

4. Do not touch anything having ETHYL Fluid on it with your bare hands.

5. Do not spill or splash ETHYL Fluid.

6. If you should get the Fluid on any part of your skin stop what you are doing at once, remove your clothes, and clean the Fluid off. Wash the part with kerosene, and then wash off all the kerosene

with soap and hot water.

7. If you must touch anything having ETHYL Fluid upon it, put on your rubber gloves. Be sure your rubber gloves are in perfect condition. If they have a hole in them or if they are spongy, they are more dangerous than no gloves at all.

8. If your clothes are splashed or wet with ETHYL Fluid, take them off. The Fluid will soak through and get on your skin.

D. HOW TO KEEP POISON OUT OF YOUR MOUTH

1. Do not put your fingers into your mouth, and do not handle anything that goes into your mouth without washing your hands carefully. Wash the hands carefully before meals, and before putting tobacco or other articles into your mouth. Use plenty of soap and a brush, being sure to brush the entire surface of the hands, and under the nails. Keep your finger nails short and clean.

E. HOW TO KEEP FROM BREATHING FUMES FROM ETHYL FLUID

1. Whenever you can smell the Fluid you are breathing it in. Do not stay in any place where you can smell ETHYL Fluid. It is possible to prevent such fumes from being present where you work. See that this is done. If you can smell the Fluid there is a leak, or there has been a spill. The management must be notified and the faulty conditions must be corrected before work is continued. If you must work for a short time in a place where the smell of the Fluid is noticed, put on a gas mask. Test it to be sure it fits properly and does not leak. This allows you to breathe pure air.

F. CARE OF GENERAL HEALTH

1. Eat regularly of a well mixed diet. Do not go to work without breakfast and do not adopt unusual diets, except as prescribed by a physician for some special reason.

2. When you are sick in any way, whether from a bad cold or any other thing, do not work in the mixing plant. Report to the foreman and consult a physician. Sickness of any kind is reason enough for not working with lead.

3. Your teeth should be kept clean and in good condition. Clean them twice daily, brushing them carefully. If your gums bleed when you brush your teeth, consult your dentist. Do not keep old snags and roots of teeth in your mouth. Have them pulled. They are a menace to your health.

4. Keep the bowels regular. When a cathartic is needed use Epsom Salts or Magnesium Citrate or Seidlitz Powders.

5. Drink water freely and regularly.

PART 3 SPECIAL REGULATIONS

Special Regulations are issued covering phases during which contact with Ethyl Fluid may be involved. These separate special instructions are listed in detail below, and must be followed in complete detail by all persons who may be involved in a particular activity.

Reference to Booklet of Instructions	TITLE	Placard Avail- able for posting in accordance with Part 1, para. E of this booklet
DMR	Recommendations for the mixing of Ethyl Fluid by Drum Equipment	Yes
BMR	Recommendations for the mixing of Ethyl Fluid with Bulk Tank Equipment utilizing supplies in Tank Wagons.	Yes
DEMR	Recommendations for the mixing of Ethyl Fluid with Bulk Tank Equipment, utilizing supplies in Drums	Yes
LR	The handling and mixing of Ethyl Fluid in laboratories	Yes
TCR	Regulations governing the cleaning and repairing of storage tanks which have contained leaded gasoline	No but I think we ought to produce one HF
SR	Recommendations for the transport of Ethyl Fluid (brand of ANTI KNOCK COMPOUND) by Road, Rail and Sea, or Barge	No

(Filling of small containers) suggest we refer to this in this booklet. HF

*Agree
PK*

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