

NOSB NATIONAL LIST FILE CHECKLIST

CROPS

MATERIAL NAME: #1 Alcohol

✓

NOSB Database Form

✓

References

✓

MSDS (or equivalent)

✓

**TAP Reviews from: John Clark, Vivian Purdy
(Additional TAP Review expected from: Bill
Wolf)**

**NOSB/NATIONAL LIST
COMMENT FORM
CROPS**

Material Name: #1 Alcohol

Please use this page to write down comments, questions, and your anticipated vote(s).

COMMENTS/QUESTIONS:

1. In my opinion, this material is:
 Synthetic Non-synthetic.

2. This material should be placed on the proposed National List as:
 Prohibited Natural Allowed Synthetic.

TAP REVIEWER COMMENT FORM for USDA/NOSB

Use this page or an equivalent to write down comments and summarize your evaluation regarding the data presented in the file of this potential National List material. Complete both sides of page. Attach additional sheets if you wish.

This file is due back to us by: Sept 15, 1995

Name of Material:

Alcohol

Reviewer Name:

Vivian Purdy

Is this substance Synthetic or non-synthetic? Explain (if appropriate)

synthetic

If synthetic, how is the material made? (please answer here if our database form is blank)

Naturally fermented is natural not synthetic, but in general alcohols are synthetic

This material should be added to the National List as:

Synthetic Allowed

Prohibited Natural

or, Non-synthetic (This material does not belong on National List)

Are there any use restrictions or limitations that should be placed on this material on the National List?

We should consider banning methanol because its persistent and toxicity is cumulative. However, a lot of ethanol has a little methanol added to make it unfit to drink (avoids taxes) - which isn't a problem. Please comment on the accuracy of the information in the file: can't be avoided.

Any additional comments? (attachments welcomed)

Not sure why we're discussing this if national law says alcohol's in.

Do you have a commercial interest in this material? Yes; No

Signature

Vivian Purdy

Date

9-7-95

NOSB Materials Database

2

OFPA Criteria

2119(m)1: chemical interactions

2119(m)2: toxicity & persistence

Oxidizes readily to carbon dioxide and water in the body or the environment. Not a cumulative poison.

Methanol is a cumulative poison, but not ethanol or isopropyl.

2119(m)3: manufacture & disposal consequences

Care must be taken to avoid exposing workers in manufacture to fumes. High flammability affects handling.

2119(m)4: effect on human health

(All toxicity data following is based on direct ingestion of alcohol by humans which would not be the case when used in crop production inputs.) Ethyl Alcohol has been linked to birth defects and cancer in humans when consumed. LD50(Oral-Rat)(MG/KG) - 7060; LD50(IPR-Rat)(MG/KG) - 4070; LD50(IV-Rat)(MG/KG) - 1440; LC50(Inhal-Mouse)(G/M3) - 39. Inhalation of vapors may cause headache, nausea, vomiting, dizziness, drowsiness, and loss of consciousness. Repeated exposure results in the development of a tolerance.

Suggest you explore data on methanol. World Book Encyclopedia says inhaling its fumes for prolonged periods can cause blindness and death, and is harmful to the skin.

2119(m)5: agroecosystem biology

While high concentrations are toxic to soil organisms, the amount used as carriers or disinfectants is small and breaks down rapidly. *True of ethanol - methanol does not break down so quickly and is more toxic to begin with.*

2119(m)6: alternatives to substance

Humic acids (as carriers in some situations, microbial and enzymatic digestion (for extractant use only). Requiring natural source only may be alternative but it is often very difficult to determine source of alcohol.

2119(m)7: Is it compatible?

References

Kirk-Othmer Encyclopedia of Chemical Technology, 3rd. Ed., 1982. John Wiley & Sons, NY.

World Book Encyclopedia, 1988. World Book Inc.

Identification

Common Name	Alcohol	Chemical Name	Alcohol, Anhydrous Reagent
Other Names	Ethanol, Isopropyl Alcohol, Methanol		
Code #: CAS	64-17-5 Ethanol	Code #: Other	NIOSH/RTECS: KQ6300000
N. L. Category	Synthetic Allowed	MSDS	yes

Chemistry

Family	
Composition	Mixture C ₂ H ₅ OH & C ₃ H ₇ OH & CH ₃ OH
Properties	Clear, colorless liquid with pleasant odor. Completely soluble. Specific gravity 0.79, evaporation rate 3/1, boiling point 78 C. Versatility makes it a chemical intermediate for other organic chemicals.
How Made	

Distillation from either natural or synthetic sources. Sulfite process consists of treating wood chips with calcium bisulfite at elevated temperatures and pressures. Then sulfur dioxide is stripped out and yeast is added to ferment sugars to ethyl alcohol. This is considered "natural" alcohol production, and is used with other fermentable sugars as well, such as molasses, grain or potatoes. Synthetic ethanol is produced from ethylene, either by the indirect hydration process or by direct hydration process. Synthetic production far exceeds fermentation production.

Methanol: combines hydrogen with carbon monoxide to form the alcohol CH₃OH, when heated under pressure in the presence of a metal oxide catalyst. The mixture of carbon dioxide and hydrogen can be made from coal, natural gas, petroleum, wood, garbage, sewage.

Use/Action

Type of Use	Crops
Use(s)	Solvents and carriers in brand name products with allowed active ingredients. Disinfectants. Ingredient in plant extracts. Used in extraction of other active ingredients.

Action *Mixes readily with water.*

Combinations

•

Status

OFPA

N. L. Restriction Alcohols are allowed as solvents and carriers in brand name products with allowed active ingredient(s). Also as disinfectants and in plant extracts.

• EPA, FDA, etc

Safety Guidelines Flammable. Keep away from heat, sparks, flame. Avoid breathing vapor.

Directions

Registration

State Differences On California Proposition 65 list

Historical status approved unknowingly as carrier, extractant and inert.

International status

TAP REVIEWER COMMENT FORM for USDA/NOSB

Use this page or an equivalent to write down comments and summarize your evaluation regarding the data presented in the file of this potential National List material. Complete both sides of page. Attach additional sheets if you wish.

This file is due back to us by: Sept 15, 1995

Name of Material: Alcohol

Reviewer Name: John Bell Clark

Is this substance Synthetic or non-synthetic? Explain (if appropriate)

Synthetic

If synthetic, how is the material made? (please answer here if our database form is blank)

This material should be added to the National List as:

Synthetic Allowed Prohibited Natural

or, Non-synthetic (This material does not belong on National List)

Synthetic is not allowed

Are there any use restrictions or limitations that should be placed on this material on the National List?

Does not belong on national list, because non-synthetic alternative (natural ethanol) is available.

Please comment on the accuracy of the information in the file:

I'm impossible to assess ^{synthetic} alcohol without defining what alcohol is! You are saying that ethanol, methanol & isopropanol are

Any additional comments? (attachments welcomed)

This ^{presentation} is an outrage. Provide a literature search on each alcohol, separate the reviews, ^{synonymous?} a review is not possible in this form

Do you have a commercial interest in this material? Yes; No

Signature John Bell Clark

Date 9-13-95

**Please address the 7 criteria in the Organic Foods Production Act:
(comment in those areas you feel are applicable)**

(1) the potential of such substances for detrimental chemical interactions with other materials used in organic farming systems;

(2) the toxicity and mode of action of the substance and of its breakdown products or any contaminants, and their persistence and areas of concentration in the environment;

ground water contamination

(3) the probability of environmental contamination during manufacture, use, misuse or disposal of such substance;

*high energy use, air & ground pollution
flammable*

(4) the effect of the substance on human health;

*toxicant, carcinogen
methanol & isopropanol both human acute poisons*

(5) the effects of the substance on biological and chemical interactions in the agroecosystem, including the physiological effects of the substance on soil organisms (including the salt index and solubility of the soil), crops and livestock;

Kills beneficials, phytotoxic, kills soil organisms

(6) the alternatives to using the substance in terms of practices or other available materials; and

*pure distilled ethanol from fermentation,
taxable liquor, etc.*

(7) its compatibility with a system of sustainable agriculture.

not compatible for use on crops

Identification

Common Name	Alcohol	Chemical Name	Alcohol, Anhydrous Reagent
Other Names	Ethanol, Isopropyl Alcohol, Methanol		
Code #: CAS	64-17-5 Ethanol	Code #: Other	NIOSH/RTECS: KQ6300000
N. L. Category	Synthetic Allowed	MSDS	yes

← *??!!* → **NO!**

Chemistry

Family	
Composition	Mixture C ₂ H ₅ OH & C ₃ H ₇ OH & CH ₃ OH ← <i>denatured alcohol!</i>
Properties	Clear, colorless liquid with pleasant odor. Completely soluble. Specific gravity 0.79, evaporation rate 3/1, boiling point 78 C. Versatility makes it a chemical intermediate for other organic chemicals.
How Made	

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Use/Action

Type of Use	Crops
Use(s)	Solvents and carriers in brand name products with allowed active ingredients. Disinfectants. Ingredient in plant extracts. Used in extraction of other active ingredients.

Action

Combinations

Status

OFPA

N. L. Restriction Alcohols are allowed as solvents and carriers in brand name products with allowed active ingredient(s). Also as disinfectants and in plant extracts.

EPA, FDA, etc

Safety Guidelines Flammable. Keep away from heat, sparks, flame. Avoid breathing vapor.

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Action**Combinations****Status****OFPA**

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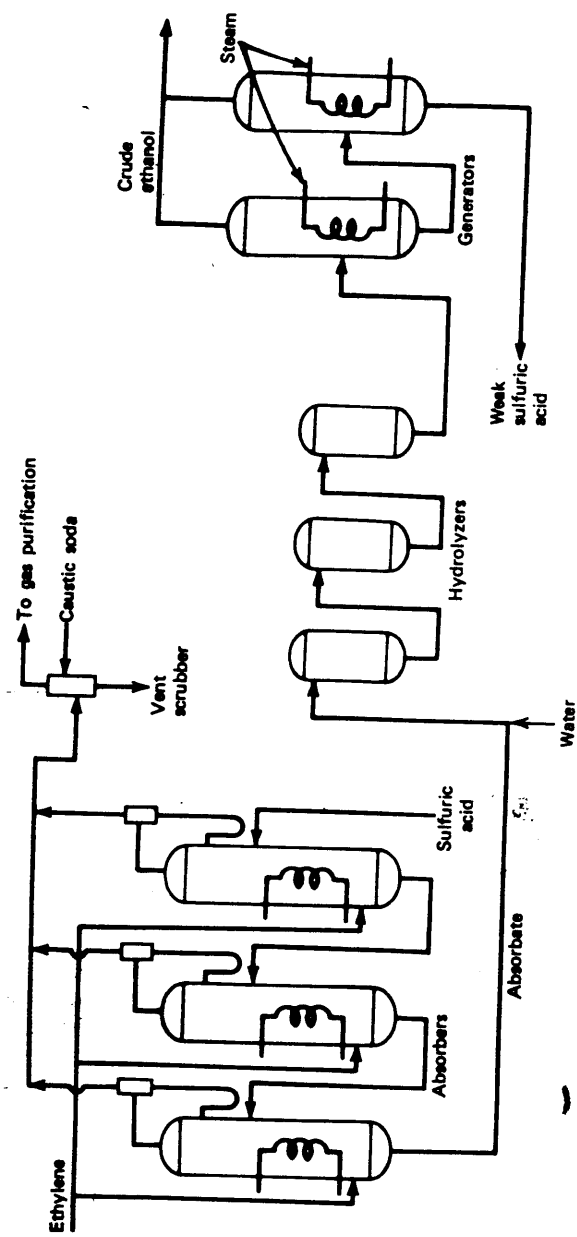


Figure 1. Manufacture of ethyl alcohol by esterification-hydrolysis (indirect hydration).

MSDS for ALCOHOL, ANHYDROUS, REAGENT

1 - PRODUCT IDENTIFICATION

PRODUCT NAME: ALCOHOL, ANHYDROUS, REAGENT
FORMULA: MIXTURE C₂H₅OH & C₃H₇OH & CH₃OH
FORMULA WT: .00
CAS NO.: - - NIOSH/RTECS NO.: KQ6300000
COMMON SYNONYMS: ETHANOL PRODUCT CODES: 9229,9401,A478,5128,9400
EFFECTIVE: 08/06/86 REVISION #03

PRECAUTIONARY LABELLING BAKER SAF-T-DATA(TM) SYSTEM

HEALTH - 3 SEVERE (POISON)
FLAMMABILITY - 3 SEVERE (FLAMMABLE)
REACTIVITY - 1 SLIGHT
CONTACT - 1 SLIGHT

HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES;
CLASS B EXTINGUISHER

PRECAUTIONARY LABEL STATEMENTS

POISON DANGER FLAMMABLE - VAPOR HARMFUL
MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED
CANNOT BE MADE NON-POISONOUS
CAUTION - POISON - CONTAINS METHYL ALCOHOL. NOT FOR INTERNAL OR
EXTERNAL USE.

KEEP AWAY FROM HEAT, SPARKS, FLAME. DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID BREATHING VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE
VENTILATION. WASH THOROUGHLY AFTER HANDLING. IN CASE OF FIRE, USE WATER
SPRAY, ALCOHOL FOAM, DRY CHEMICAL, OR CARBON DIOXIDE. FLUSH SPILL AREA WITH
WATER SPRAY.

SAF-T-DATA(TM) STORAGE COLOR CODE: RED (FLAMMABLE)

2 - HAZARDOUS COMPONENTS

COMPONENT	%	CAS NO.
ETHYL ALCOHOL	90-100	64-17-5
ISOPROPYL ALCOHOL	>1	67-63-0
METHYL ALCOHOL	>1	67-56-1

3 - PHYSICAL DATA

BOILING POINT: 78 C (172 F) VAPOR PRESSURE(MM HG): 44

DROWSINESS, IRRITATION OF RESPIRATORY TRACT, AND LOSS OF CONSCIOUSNESS.
CONTACT MAY CAUSE IRRITATION OF SKIN, EYES, AND MUCOUS MEMBRANES.
PROLONGED EXPOSURE MAY CAUSE DERMATITIS.
INGESTION MAY CAUSE BLINDNESS.
INGESTION MAY CAUSE NAUSEA, VOMITING, HEADACHES, DIZZINESS,
GASTROINTESTINAL IRRITATION.
INGESTION MAY CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION.

TARGET ORGANS: NONE IDENTIFIED

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE IDENTIFIED

ROUTES OF ENTRY: INGESTION, INHALATION, SKIN CONTACT, EYE CONTACT

EMERGENCY AND FIRST AID PROCEDURES

CALL A PHYSICIAN.

IF SWALLOWED, IF CONSCIOUS, GIVE LARGE AMOUNTS OF WATER. INDUCE VOMITING.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL
RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT
LEAST 15 MINUTES. FLUSH SKIN WITH WATER.

6 - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT, FLAME, OTHER SOURCES OF IGNITION,
SUNLIGHT AND ULTRAVIOLET LIGHT

INCOMPATIBLES: STRONG OXIDIZING AGENTS, ALUMINUM, ALKALI METALS,
ACETYL CHLORIDE

DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE

7 - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE

WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.
SHUT OFF IGNITION SOURCES; NO FLARES, SMOKING OR FLAMES IN AREA. STOP LEAK
IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. TAKE UP
WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO
CONTAINER FOR LATER DISPOSAL. FLUSH AREA WITH WATER.

J. T. BAKER SOLUSORB(R) SOLVENT ADSORBENT IS RECOMMENDED
FOR SPILLS OF THIS PRODUCT.

DISPOSAL PROCEDURE

DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL
ENVIRONMENTAL REGULATIONS.

EPA HAZARDOUS WASTE NUMBER: D001 (IGNITABLE WASTE)
