

NOSB NATIONAL LIST FILE CHECKLIST

LIVESTOCK

MATERIAL NAME: #7 Glucose



NOSB Database Form



References



MSDS (or equivalent)



TAP Reviews from: Marta Engel, Lynn Brown

**NOSB/NATIONAL LIST
COMMENT FORM
LIVESTOCK**

Material Name: #7 Glucose

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: ~~JULY 3~~ Sept. 5, 1995

Name of Material: GLUCOSE

Reviewer Name: MARTA W. ENGEL DVM.

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

~~Non~~ Synthetic

If synthetic, how is the material made? (please answer here if our database form is blank) Most of the material called glucose or dextrose is made by hydrolysis of starch. It probably could be derived naturally, But most commercial sources 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?

for oral (in electrolyte solutions) or in IV solution (most commonly)

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

ok to best of my knowledge

Any additional comments? (attachments welcomed)

IV glucose may or may not contain preservatives.

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

Signature Marta W Engel DVM Date 9/8/95

**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;**

Don't know of any.

- (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;**

Naturally occurring in the blood of the body. Not a problem.

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

Probably not.

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

Moderate consumption is not a problem. Normally in foods consumed or body breaks starches into dextrose or glucose.

- (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;**

Very little getting into environment. Most absorbed by body. Not a problem.

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

Propylene glycol can be used as a ketosis treatment (also a synthetic). There are other approaches to ketosis treatment.

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

yes

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: JULY 3

Name of Material: GLUCOSE

Reviewer Name: Lynn R Brown

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) Simple sugar, extracted from corn or other grains

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?

used in treatment of diabetes

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

The information is correct

Any additional comments? (attachments welcomed)

Glucose is one of the primary treatments for diabetes - used to restore blood glucose to normal levels.

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

Signature Lynn R Brown Date 6/16/95

**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;**

None

- (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;**

None

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

None

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

None

- (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;**

None

- (6) the alternatives to using the substance in terms of practices or other available materials; and** *Other, more effective, treatments are used for ketosis but glucose usually is given in combination with these making more rapid recovery for the animal.*

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

The use of glucose is compatible with sustainable ag.

Identification

Common Name	Glucose	Chemical Name
Other Names	Dextrose, grape sugar, corn sugar	
Code #: CAS		Code #: Other
N. L. Category	unknown	

Chemistry

Composition	CH ₂ OHCHO(CHOH) ₄	Family
Properties	White, odorless granular powder. Melting point 146 C, specific gravity 1.544. Soluble in water.	
How Made		

Use/Action

Type of Use	Livestock
Use(s)	Health care. Used as an aid in the treatment of primary, uncomplicated ketosis in cattle. Considered to be a new animal drug of low regulatory priority and can be marketed over-the-counter. If intended for use in treating hypoglycemia, in treatment for shock, or as a supplemental energy source, it is considered to be a new animal drug and must bear a veterinarian's prescription.

Action

Combinations

Status

OFPA

N. L. Restriction Category 1

EPA, FDA, etc see Use(s) above.

Registration

Directions

Safety Guidelines

State Differences

Historical status

International status

OFPA Criteria

2119(m)1:chem. inter.

2119(m)2: toxicity Oral Rat LD50: 25,800 Mg/Kg.

2119(m)3:manufacture

2119(m)4:humans

2119(m)5: biology

2119(m)6:alternatives

2119(m)7:compatible

References

See attached.

GLUCOSE REFERENCES

AU: Waugh,-E.E.; Wales,-R.G.

TI: Oxidative utilization of glucose, acetate and lactate by early preimplantation sheep, mouse and cattle embryos.

CN: DNAL QP251.R47

PY: 1993

AU: Hironaka,-R.; Kozub,-G.C.

TI: The influence of digestible energy concentration of the diet on feed intake and rate of gain by beef steers.

CN: DNAL 41.8-C163

PY: 1991

AU: Terashima,-Y.; Tucker,-R.E.; Hodge,-D.L.; Muntifering,-R.B.; Mitchell,-G.E.-Jr.

TI: Plasma glucose clearance in ewes fed a low magnesium diet with or without excess potassium.

CN: DNAL 100-K41PR

PY: 1984

AU: McClary,-D.G.; Sartin,-J.L.; Kemppainen,-R.J.; Williams,-J.C.

TI: Insulin and growth hormone responses to glucose infusion in mature and first-lactation dairy cows.

CN: DNAL 41.8-AM3A

PY: 1988

AB: Five mature Holstein cows and 6 first-lactation Holstein cows were administered 100 mg of glucose/kg of body weight, IV, over a 20-minute period on postpartum day 30. Baseline glucose and free fatty acid concentrations were similar in cattle of both groups throughout the sample collection period. Both groups of cattle disposed of the infused glucose in a similar manner. Compared with that in the mature cows, the higher IRI concentration required by the first-lactation cows to utilize approximately the same glucose load suggested that first-lactation cows were insulin resistant. The increased insulin response to increased glucose concentration may be one reason first-lactation cows produce less milk than do mature cows.

AU: Sato,-H.

TI: Features of lipid and carbohydrate metabolism during fattening in cattle.

CN: DNAL SF5.W6-1983

PY: 1983

AU: Reinhold,-P.; Schulz,-J.; Beuche,-W.; Jakel,-L.

TI: Treatment of cattle for acute mastitis. 1. Therapeutic application of glucose solutions. Zur Behandlung akuter Mastitiden des Rindes. 1. Therapeutischer Einsatz von Glukose-Lösungen.

CN: DNAL 41.8-EX7

PY: 1986

AU: Prior,-R.L.; Smith,-S.B.; Mersmann,-H.J.

TI: Role of insulin in regulating metabolism in beef cattle.

CN: DNAL aS21.R44A7

PY: 1985

AU: Denbow,-C.J.; Perera,-K.S.; Swazdauskas,-F.C.; Akers,-R.M.; Peason,-R.E.; McGilliard,-M.L.

TI: Effect of season and stage of lactation on plasma insulin and glucose following glucose injection in Holstein cattle.

CN: DNAL 44.8-J822

PY: 1986

AU: Sato,-H.; Tsuneishi,-E.; Takimoto,-Y.; Nishimura,-K.

TI: Lypolysis, glucose tolerance and insulin sensitivity during fattening in cattle.

CN: DNAL 49-N62

PY: 1984

MATERIAL SAFETY DATA SHEET

DEXTROSE

Note: this is similar to Glucose also called Grape Sugar.

SECTION I - Product Identification

PRODUCT NAME: DEXTROSE
FORMULA: $\text{CH}_2\text{OHCHO}(\text{CHOH})_4$
FORMULA WT: 180.16
CAS NO.:
COMMON SYNONYMS: D-GLUCOSE, GRAPE SUGAR, CORN SUGAR

Precautionary Labeling

N/A

SECTION II - Hazardous Components

N/A

SECTION III - Physical Data

BOILING POINT: N/A VAPOR PRESSURE @ 20C (MM HG): N/A
MELTING POINT: 146C VAPOR DENSITY (AIR=1): N/A
SPECIFIC GRAVITY: 1.544 EVAPORATION RATE: N/A
(H₂O=1) (BUTYL ACETATE=1)
SOLUBILITY(H₂O): 47 PERCENT VOLATILES BY VOLUME: N/A
APPEARANCE & ODOR: WHITE, ODORLESS GRANULAR POWDER

SECTION IV - Fire and Explosion Hazard Data

FLASH POINT: NONE
FLAMMABLE LIMITS: UPPER - N/A % LOWER - N/A %
FIRE EXTINGUISHING MEDIA
 WATER, CARBON DIOXIDE, DRY CHEMICAL
SPECIAL FIRE-FIGHTING PROCEDURES
 AIR SUPPLIED RESPIRATOR MAY BE REQUIRED FOR FIGHTING FIRES
UNUSUAL FIRE AND EXPLOSION HAZARDS
 THERMAL DECOMPOSITION PRODUCES ACRID SMOKE AND FUMES

SECTION V - Health Hazard Data

THRESHOLD LIMIT VALUE (TLV/TWA): NONE ESTABLISHED BY ACGIH
TOXICITY: ORL-RAT LD50: 25,800 MG/KG
EFFECTS OF OVEREXPOSURE
 CONTACT WITH SKIN OR EYES MAY CAUSE SLIGHT IRRITATION. INHALATION OF
 DUST MAY BE IRRITATING TO UPPER RESPIRATORY PASSAGES
EMERGENCY AND FIRST AID PROCEDURES
 SKIN: WASH WITH SOAP/WATER, GET MEDICAL ASSISTANCE
 EYES: WASH WITH WATER, GET MEDICAL ASSISTANCE
 INHALATION: REMOVE TO FRESH AIR, GET MEDICAL ASSISTANCE
 GET MEDICAL ASSISTANCE FOR ALL CASES OF OVEREXPOSURE

SECTION VI - Reactivity Data

STABILITY: STABLE

CONDITIONS TO AVOID: MAY REACT VIOLENTLY WITH STRONG OXIDIZERS

INCOMPATIBLES: OXIDIZERS, HF, STRONG ALKALIES

DECOMPOSITION PRODUCTS: BURNING MAY PRODUCE TOXIC CARBON MONOXIDE

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SECTION VII - Spill and Disposal Procedures

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

TAKE UP AND CONTAINERIZE FOR PROPER DISPOSAL

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SECTION VIII - Protective Equipment

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PROVIDE ADEQUATE MECHANICAL VENTILATION

PROTECT EYES AND SKIN WITH SAFETY GOGGLES AND RESISTANT GLOVES

WASH THOROUGHLY AFTER HANDLING

DO NOT BREATHE DUST

AVOID PROLONGED SKIN CONTACT

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SECTION IX - Storage and Handling Precautions

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KEEP CONTAINER TIGHTLY CLOSED AND PROTECTED AGAINST PHYSICAL DAMAGE

STORE IN COOL, WELL-VENTILATED AREA

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SECTION X - Transportation Data and Additional Information

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REV. 1/85

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N/A = Not Applicable OR Not Available

The information published in this Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the user's responsibility to determine the suitability of this information for adoption of necessary safety precautions. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.

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