The following information was generated from the
Hazardous Substances Data Bank (HSDB),
a database of the National Library of Medicine's TOXNET system
(http://toxnet.nlm.nih.gov) on August 24, 2010.

Query: Records containing the term 9000 01 5

1
NAME: ACACIA

HSN: 1914

RN: 9000-01-5

HUMAN HEALTH EFFECTS:

HUMAN TOXICITY EXCERPTS:

PRINTING WORKERS EXPOSED TO.../GUM ARABIC/ MIST HAVE BEEN FOUND TO SUFFER FROM ALLERGIC REACTIONS OFTEN KNOWN AS "PRINTER'S ASTHMA", FREQUENCY OF ALLERGIC SYMPTOMS DEPENDING MAINLY ON ATMOSPHERIC GUM ARABIC CONCN. [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

STUDY CARRIED OUT IN PRINTING WORKS IN STUTTGART REVEALED SYMPTOMS SUCH AS INCIPIENT OR CLEARLY DEFINED ASTHMA, CATARRH &...IRRITATION OF NASAL MUCOUS, SINUS, THROAT, RESPIRATORY TRACT AND BRONCHUS. CASES OF FAINTING FITS AMONG WOMEN EXPOSED TO GUM ARABIC HAVE BEEN RECORDED. [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

EXAMINATION OF 37 PRINTING WORKERS REVEALED 13 CASES OF MARKED DYSPNEA, SOON AFTER EXERTION. A DISTINGUISHING FEATURE WAS THAT THE TROUBLE APPEARED SHORTLY AFTER ARRIVAL AT WORK AND DID NOT OCCUR ON NON-WORKING DAYS. [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

EXAMINATION OF 37 PRINTING WORKERS...SOON AFTER EXERTION. IN 20 OF THE 37 PRINTERS, THERE WERE WELL-DEFINED RADIOLOGICAL FINDINGS IN...LUNGS, WITH OCCASIONAL CHRONIC BRONCHITIS, AND PULMONARY CONGESTION. [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

EXAMINATION OF 37 PRINTING WORKERS REVEALED...DYSPNEA SOON AFTER EXERTION. IN 9 CASES VITAL CAPACITY WAS APPRECIABLY REDUCED, EVEN IN WORKERS WHO

WERE OTHERWISE APPARENTLY WITHOUT SUBJECTIVE DISTURBANCES. INTRACUTANEOUS INJECTION OF 1% GUM ARABIC SOLN PRODUCED POSITIVE REACTION IN 16 OF 37 WORKERS. [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

AN ATTEMPT AT PASSIVE TRANSMISSION USING THE SERUM FROM A PATIENT SUFFERING FROM PRINTER'S ASTHMA HAS PROVED POSITIVE, AND 11 EMPLOYEES OF A PRINTWORKS WHO HAD NEVER HAD ANY ILL EFFECTS ALSO SHOWED POSITIVE REACTIONS. FURTHER STUDIES HAVE SHOWN THAT SENSITIZATION OCCURRED IN ABOUT 50% OF WORKERS. [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

PROVED TO BE A SPECIFIC ALLERGEN GIVING RISE TO SKIN LESIONS AND TO SEVERE ASTHMATIC ATTACKS IN PRINTERS EXPOSED TO ACACIA DUST. [Gosselin, R.E., H.C. Hodge, R.P. Smith, and M.N. Gleason. Clinical Toxicology of Commercial Products. 4th ed. Baltimore: Williams and Wilkins, 1976., p. II-155] **PEER REVIEWED**

ACACIA SOLN...IV INJECTION... THERE IS VACUOLIZATION OF LIVER, WITH MODERATE REDUCTION OF HEPATIC FUNCTION. [Thienes, C., and T.J. Haley. Clinical Toxicology. 5th ed. Philadelphia: Lea and Febiger, 1972., p. 146] **PEER REVIEWED**

HYPERSENSITIVITY REACTIONS TO ACACIA USED AS ADHESIVE IN PREDNISONE TABLETS WERE OBSERVED IN KIDNEY TRANSPLANT PT ON LONG TERM THERAPY. [RUBINGER D ET AL; HYPERSENSITIVITY TO TABLET ADDITIVES IN TRANSPLANT RECIPIENTS ON PREDNISONE; LANCET 2(SEPT 23): 689 (1978)] **PEER REVIEWED**

ORAL TOXICITY LOW. [Gosselin, R.E., H.C. Hodge, R.P. Smith, and M.N. Gleason. Clinical Toxicology of Commercial Products. 4th ed. Baltimore: Williams and Wilkins, 1976., p. II-155] **PEER REVIEWED**

...STUDY OF PRINTERS EXPOSED TO GUM... ON THE AVG, 5 YEARS OR MORE PASSED BEFORE ASTHMA OCCURRED...PRINTERS WITH PERSONAL FAMILY HISTORY OF ATOPIC ALLERGY DEVELOPED SYMPTOMS MUCH SOONER. ...ONE FIRM IN WHICH 30%...COMPLAINED OF WHEEZING AND 19%...ASTHMA. [Hamilton, A., and H. L. Hardy. Industrial Toxicology. 3rd ed. Acton, Mass.: Publishing Sciences Group, Inc., 1974., p. 461] **PEER REVIEWED**

FURTHER STUDIES HAVE SHOWN...SENSITIZATION OCCURRED IN ABOUT 50% OF WORKERS. COURSE OF ALLERGY IS IN 2 PERIODS...FIRST ANTIGEN-ANTIBODY REACTION SOMETIMES WITHOUT SYMPTOMS (SILENT SENSITIZATION). THIS IS FOLLOWED IN MANY CASES BY CLINICAL DISORDERS DUE TO ANOTHER MECHANISM... [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

Ingested orally, acacia is nontoxic. ... Some people are allergic to its dust and develop skin lesions and severe asthmatic attacks when in contact with it. [Leung, A.Y., Foster, S. Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics. New York, NY. John Wiley & Sons, Inc. 1996., p. 5] **PEER REVIEWED**

DRUG WARNINGS:

ACACIA SOLN SHOULD NOT BE USED AS SUBSTITUTE FOR SERUM PROTEIN IN TREATMENT OF SHOCK & AS DIURETIC IN HYPOPROTEINEMIC EDEMA, SINCE IT PRODUCES SERIOUS SYNDROMES WHICH MAY RESULT IN DEATH. [Osol, A. and J.E. Hoover, et al. (eds.). Remington's Pharmaceutical Sciences. 15th ed. Easton, Pennsylvania: Mack Publishing Co., 1975., p. 1242] **PEER REVIEWED**

IN 1930'S.../ACACIA/ WAS USED IV TO RELIEVE EDEMA OF NEPHROSIS; REACTIONS CONSISTED OF NAUSEA, VOMITING, DYSPNEA, & URTICARIA... [Gosselin, R.E., H.C. Hodge, R.P. Smith, and M.N. Gleason. Clinical Toxicology of Commercial Products. 4th ed. Baltimore: Williams and Wilkins, 1976., p. II-155] **PEER REVIEWED**

MINIMUM FATAL DOSE LEVEL:

1. 1= PRACTICALLY NON-TOXIC: PROBABLE ORAL LETHAL DOSE (HUMAN) ABOVE 15 G/KG, MORE THAN 1 QUART FOR 70 KG PERSON (150 LB). [Gosselin, R.E., H.C. Hodge, R.P. Smith, and M.N. Gleason. Clinical Toxicology of Commercial Products. 4th ed. Baltimore: Williams and Wilkins, 1976., p. II-155] **PEER REVIEWED**

EMERGENCY MEDICAL TREATMENT:

EMERGENCY MEDICAL TREATMENT:

<p>The following Overview, ***

NON-TOXIC INGESTION ***, is relevant for this HSDB record chemical.
LIFE SUPPORT:
- o This overview assumes that basic life support measures have been instituted.

CLINICAL EFFECTS:
0.2.1 SUMMARY OF EXPOSURE
0.2.1.1 ACUTE EXPOSURE

A) A nontoxic ingestion occurs when the victim consumes an inedible product that usually does not produce symptoms. The importance of knowing that a product is nontoxic is that over treatment is avoided and, more importantly, the victim and parents are not placed in the jeopardy of a panicky automobile ride to the physician or nearest hospital (Comstock, 1978).

B) Although some products may be labeled as nontoxic in this management, a patient can potentially have a non-dose-related life-threatening effect such as a hypersensitivity reaction to any substance, and be at risk of foreign body obstruction and aspiration (Kearney et al, 2006).

C) Materials referenced to this management have been considered very unlikely to produce any toxicity except in enormous doses. For example, ballpoint pen cartridges, even if sucked completely dry by a child, do not contain enough toxic materials to cause illness (Mofenson et al, 1984).

D) While almost anything, including water and table salt, may cause illness if taken in excessive amounts or by other than the normal route, normal exposures from these products would not be expected to produce toxicity (Horev & Cohen, 1994).

E) Some agents are harmful in manners different from that expected. A broken thermometer is dangerous not from the inert metallic mercury, but from the broken glass (Mofenson et al, 1984). Most patients calling are more worried about mercury, which they think of as poison, than the glass.

F) General guidelines for determining whether an exposure can be categorized as nontoxic (reviewed in Weisman, 1998; (Mofenson et al, 1984):

1) Absolute identification of the product, its ingredients, and its concentration.
2) Absolute assurance that only the identified product was involved in the exposure.
3) The exposure must be unintentional.
4) "Signal words" identified by the Consumer Product Safety Commission ie, Caution, Warning, Danger) must not be found on the label.
5) A reliable approximation of the quantity of the

substance involved in the exposure.
6) The route of exposure can be assessed accurately from the patient's available history.
7) Following the exposure, the patient is symptom-free.
8) A follow-up consultation with the patient must be possible. In the case of a pediatric exposure, the parent must appear to be reliable.

LABORATORY:

A) In most cases it will not be necessary to perform laboratory tests. However, if a patient is developing symptoms from what should be a nontoxic product, appropriate evaluation and treatment should be performed.

TREATMENT OVERVIEW:

0.4.2 ORAL EXPOSURE

A) Even though a substance may be considered nontoxic for the amount ingested or packaged, it should not be considered nontoxic in any amounts. Even ingestions of various foodstuffs can cause adverse symptoms if large amounts are eaten (eg, green apples, garlic, onion).
B) The most important fact to remember is to treat the patient, not the poison, especially when the diagnosis is unknown.
C) Knowing that the product is listed as nontoxic helps avoid overtreating the patient or being overzealous in getting a patient to professional medical care.
D) If there is a question of simultaneous ingestion of a product that may be more dangerous, the management on the more toxic agent should be consulted.

0.4.3 INHALATION EXPOSURE

A) Although inhalation of common dust may not be considered toxic, it is certainly a hazard if there is inhalation of too many particles. Individuals should be removed from exposure to too high a concentration of even relatively nontoxic substances.

0.4.4 EYE EXPOSURE

A) Foreign materials in the eye may not cause a toxic reaction, but injury from a foreign body may occur. In such cases, the patient should be observed for eye irritation and should seek medical assistance if the irritation becomes significant.

0.4.5 DERMAL EXPOSURE

A) OVERVIEW

1) Foreign materials spilled on the skin may not represent a toxic or irritation hazard in small quantities but may produce adverse effects if applied in large quantities or if used over a significant period of time. Whenever possible, foreign materials should be removed from the skin with simple washing. Should skin irritation or erythema occur, a patient may wish to

seek medical assistance.

RANGE OF TOXICITY:

A) These agents are considered not to be a toxic hazard in the quantities available through normal exposure or package size.

ANIMAL TOXICITY STUDIES:

NON-HUMAN TOXICITY EXCERPTS:

REPEATED ORAL ADMIN OF GUM ARABIC TO RATS CAUSED UNCOUPLING OF OXIDATIVE PHOSPHORYLATION IN LIVER & HEART MITOCHONDRIA & PARTIAL INHIBITION OF MIXED FUNCTION OXIDASES OF LIVER ENDOPLASMIC RETICULUM. [BACHMANN E ET AL; PHARMACOLOGY (BASEL) 17 (1): 39 (1978)] **PEER REVIEWED**

... Under the conditions of this bioassay, gum arabic was not carcinogenic for F344 rats or B6C3F1 mice of either sex. ... Levels of Evidence of Carcinogenicity: Male Rats: Negative; Female Rats: Negative; Male Mice: Negative; Female Mice: Negative. [Carcinogenesis Bioassay of Gum Arabic in F344 Rats and B6C3F1 Mice. Technical Report Series No. 227 (1982) NIH Publication No. 82-1783 U.S. Department of Health and Human Services, National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC 27709] **PEER REVIEWED**

Acacia can be digested by rats to an extent of 71%; guinea pigs and rabbits also seem to use it for energy, as do humans to a certain extent. ... Acacia may actually elevate serum or tissue cholesterol levels in rats. [Leung, A.Y., Foster, S. Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics. New York, NY. John Wiley & Sons, Inc. 1996., p. 5] **PEER REVIEWED**

NATIONAL TOXICOLOGY PROGRAM STUDIES:

A carcinogenesis bioassay of gum arabic (81 -86% pure) ... was conducted by feeding diets containing 25,000 or 50,000 ppm of the test substance to 50 F344 rats and 50 B6C3F1 mice of each sex for 103 wk. Groups of untreated rats and mice of each sex served as controls. ... Under the conditions of this bioassay, gum arabic was not carcinogenic for F344 rats or B6C3F1 mice of either sex. ... Levels of Evidence of Carcinogenicity: Male Rats: Negative; Female Rats: Negative; Male Mice: Negative; Female Mice: Negative. [Carcinogenesis Bioassay of Gum Arabic in F344 Rats and B6C3F1 Mice. Technical Report Series No. 227 (1982) NIH Publication No. 82-1783 U.S. Department of Health and Human Services, National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC 27709] **PEER REVIEWED**

METABOLISM/PHARMACOKINETICS:

ABSORPTION, DISTRIBUTION & EXCRETION:

RECENT STUDIES DEMONSTRATED THAT ACACIA IS STORED IN VACUOLES FOR LONG PERIODS BY THE LIVER. [Thienes, C., and T.J. Haley. Clinical Toxicology. 5th ed. Philadelphia: Lea and Febiger, 1972., p. 146] **PEER REVIEWED**

MECHANISM OF ACTION:

WHEN APPLIED LOCALLY TO IRRITATED OR ABRADED TISSUES, DEMULCENTS TEND TO COAT SURFACE &, BY MECHANICAL MEANS, PROTECT UNDERLYING CELLS FROM STIMULI THAT RESULT FROM CONTACT WITH AIR OR IRRITANTS IN ENVIRONMENT. /DEMULCENTS/ [Goodman, L.S., and A. Gilman. (eds.) The Pharmacological Basis of Therapeutics. 5th ed. New York: Macmillan Publishing Co., Inc., 1975., p. 946] **PEER REVIEWED**

DEMULCENTS /EG ACACIA/ ACT BY COATING IRRITATED PHARYNGEAL MUCOSA & THEY MAY HAVE BRIEF ANTITUSSIVE EFFECT ON COUGH SECONDARY TO SUCH IRRITATION. /DEMULCENTS/ [American Medical Association, AMA Department of Drugs, AMA Drug Evaluations. 3rd ed. Littleton, Massachusetts: PSG Publishing Co., Inc., 1977., p. 663] **PEER REVIEWED**

PHARMACOLOGY:

THERAPEUTIC USES:

Excipients [National Library of Medicine's Medical Subject Headings online file (MeSH, 1999)] **PEER REVIEWED**

EFFICACY OF /ANTITUSSIVE AGENTS/ PERIPHERALLY ACTING GROUP HAS NOT BEEN DEFINITELY ESTABLISHED. THIS CATEGORY INCL DEMULCENTS (EG, GLYCERIN, HONEY, ACACIA, LICORICE)... [American Medical Association, AMA Department of Drugs, AMA Drug Evaluations. 3rd ed. Littleton, Massachusetts: PSG Publishing Co., Inc., 1977., p. 663] **PEER REVIEWED**

MEDICATION (VET): TREATMENT OF MILD DIARRHEA [Rossoff, I.S. Handbook of Veterinary Drugs. New York: Springer Publishing Company, 1974., p. 1] **PEER REVIEWED**

Mainly in the manufacture of emulsions and in making pills and troches (as an excipient); as a demulcent, for inflammations of the throat or stomach and as a masking agent for acrid tasting substances such as capsicum ...; also as a film forming agent in peel off facial masks. [Leung, A.Y., Foster, S. Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics. New York, NY. John Wiley & Sons, Inc. 1996., p. 5] **PEER REVIEWED**

DRUG WARNINGS:

ACACIA SOLN SHOULD NOT BE USED AS SUBSTITUTE FOR SERUM PROTEIN IN TREATMENT OF SHOCK & AS DIURETIC IN HYPOPROTEINEMIC EDEMA, SINCE IT

PRODUCES SERIOUS SYNDROMES WHICH MAY RESULT IN DEATH. [Osol, A. and J.E. Hoover, et al. (eds.). Remington's Pharmaceutical Sciences. 15th ed. Easton, Pennsylvania: Mack Publishing Co., 1975., p. 1242] **PEER REVIEWED**

IN 1930'S.../ACACIA/ WAS USED IV TO RELIEVE EDEMA OF NEPHROSIS; REACTIONS CONSISTED OF NAUSEA, VOMITING, DYSPNEA, & URTICARIA... [Gosselin, R.E., H.C. Hodge, R.P. Smith, and M.N. Gleason. Clinical Toxicology of Commercial Products. 4th ed. Baltimore: Williams and Wilkins, 1976., p. II-155] **PEER REVIEWED**

MINIMUM FATAL DOSE LEVEL:

1. 1= PRACTICALLY NON-TOXIC: PROBABLE ORAL LETHAL DOSE (HUMAN) ABOVE 15 G/KG, MORE THAN 1 QUART FOR 70 KG PERSON (150 LB). [Gosselin, R.E., H.C. Hodge, R.P. Smith, and M.N. Gleason. Clinical Toxicology of Commercial Products. 4th ed. Baltimore: Williams and Wilkins, 1976., p. II-155] **PEER REVIEWED**

ENVIRONMENTAL FATE & EXPOSURE:

NATURAL POLLUTION SOURCES:

GUM ARABIC IS OBTAINED FROM TREES OF THE GENUS ACACIA... GUM ARABIC IS THE RESULT OF AN INFECTION, EITHER BACTERIAL OR FUNGOIDAL. IT IS EXUDED ONLY BY UNHEALTHY TREES; HEAT, POOR NUTRITION, AND DROUGHT STIMULATE ITS PRODUCTION. ...INFECTION TAKES PLACE THROUGH WOUNDS IN THE TREE... [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312] **PEER REVIEWED**

...USP acacia is dried gummy exudation from stems and branches of Acacia senegal (l) Willd, Leguminosae, or other African species of Acacia. According to CL Mantell, the Water-Sol Gums (NY, 1947), Kordofan gum... from Acacia verek...from Kordofan province (Sudan) is considered best commercial variety. [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

ENVIRONMENTAL STANDARDS & REGULATIONS:

FIFRA REQUIREMENTS:

Residues of gum arabic are exempted from the requirement of a tolerance when used as a surfactant, suspending agent and dispersing agent in accordance with good agricultural practices as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. [40 CFR 180.1001(c) (7/1/99)] **PEER REVIEWED**

FDA REQUIREMENTS:
Substance added directly to human food affirmed as generally recognized as safe (GRAS). [21 CFR 184.1330 (4/1/99)] **PEER REVIEWED**

Gum arabic used as a stabilizer in animal drugs, feeds, and related products is generally recognized as safe when used in accordance with good manufacturing or feeding practice. [21 CFR 582.7330 (4/1/99)] **PEER REVIEWED**

Manufacturers, packers, and distributors of drug and drug products for human use are responsible for complying with the labeling, certification, and usage requirements as prescribed by the Federal Food, Drug, and Cosmetic Act, as amended (secs 201-902, 52 Stat. 1040 et seq., as amended; 21 U.S.C. 321-392). [21 CFR 200-299, 300-499, 820, and 860 (4/1/99)] **PEER REVIEWED**

ALLOWABLE TOLERANCES:
Residues of gum arabic are exempted from the requirement of a tolerance when used as a surfactant, suspending agent and dispersing agent in accordance with good agricultural practices as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. [40 CFR 180.1001(c) (7/1/99)] **PEER REVIEWED**

CHEMICAL/PHYSICAL PROPERTIES:

MOLECULAR FORMULA:
UNKNOWN **PEER REVIEWED**

MOLECULAR WEIGHT:
240,000 [Sax, N.I. Dangerous Properties of Industrial Materials. Vol 1-3 7th ed. New York, NY: Van Nostrand Reinhold, 1989., p. 289] **PEER REVIEWED**

COLOR/FORM:
Spheroidal tears up to 32 mm in diameter; also flakes and powder [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

COLORLESS OR HAS A YELLOWISH-BROWNISH HUE [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

WHEN GROUND, IT IS WHITE POWDER [Goodman, L.S., and A. Gilman. (eds.) The Pharmacological Basis of Therapeutics. 5th ed. New York: Macmillan

Publishing Co., Inc., 1975., p. 946] **PEER REVIEWED**

Thin flakes, powder, granules, or angular fragments; color white to yellowish white; mucilaginous consistency [Lewis, R.J., Sr (Ed.). Hawley's Condensed Chemical Dictionary. 13th ed. New York, NY: John Wiley & Sons, Inc. 1997., p. 89] **PEER REVIEWED**

ODOR:

SOLN OF GOOD GRADES ARE PRACTICALLY ODORLESS [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312] **PEER REVIEWED**

Almost odorless [Lewis, R.J., Sr (Ed.). Hawley's Condensed Chemical Dictionary. 13th ed. New York, NY: John Wiley & Sons, Inc. 1997., p. 89] **PEER REVIEWED**

TASTE:

SOLN OF GOOD GRADES ARE PRACTICALLY TASTELESS [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312] **PEER REVIEWED**

POORER QUALITY (DARK) GRADES HAVE UNPLEASANT FLAVOR AND ODOR, PROBABLY DUE TO TANNIC ACID [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312] **PEER REVIEWED**

DENSITY/SPECIFIC GRAVITY:

1.35-1.49 (samples dried @ 100 deg C are heavier) [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

PH:

Aq soln acid to litmus [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

SOLUBILITIES:

READILY SOL IN WATER [Goodman, L.S., and A. Gilman. (eds.) The Pharmacological Basis of Therapeutics. 5th ed. New York: Macmillan Publishing Co., Inc., 1975., p. 946] **PEER REVIEWED**

Insol in alc. Sol in glycerol and in propylene glycol, but prolonged heating (several days) may be necessary for complete soln (about 5%) [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

Almost completely sol in twice its weight of water. [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals.

Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

INSOL IN MOST ORGANIC SOLVENTS [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 313] **PEER REVIEWED**

Completely soluble in hot and cold water; yielding a viscous solution of mucilage; insoluble in alcohol. [Lewis, R.J., Sr (Ed.). Hawley's Condensed Chemical Dictionary. 13th ed. New York, NY: John Wiley & Sons, Inc. 1997., p. 89] **PEER REVIEWED**

SPECTRAL PROPERTIES:

Soln of gum from Acacia verek are levorotatory; other Acacia species are dextrorotatory [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

VISCOSITY:

VISCOSITIES OF GUM ARABIC SOLN ARE RELATIVELY LOW WITH A VISCOSITY OF 200 CPS HAVING BEEN REPORTED FOR 30% SOLN; MAX VISCOSITY IS ATTAINED @ PH 6-7 WITH ONLY GRADUAL CHANGE OVER PH RANGE 5-10; VISCOSITY INCR GRADUALLY AS CONCN IS INCR UP TO 20-25%, @ WHICH POINT MORE MARKED INCR TAKES PLACE; VISCOSITY OF GUM ARABIC SOLN DECR WITH TEMP [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 313] **PEER REVIEWED**

OTHER CHEMICAL/PHYSICAL PROPERTIES:

MIXED WITH TWICE ITS WT IN WATER IT DISSOLVES SLOWLY FORMING A VISCOUS LIQ WHICH IS VERY STICKY [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

Material containing less than 12% moisture chips easily and produces dust during transportation. [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

THE EQUIVALENT OF 0.002 TO 0.011 G POTASSIUM HYDROXIDE MAY BE NECESSARY TO NEUTRALIZE 1 G OF GUM [The Merck Index. 9th ed. Rahway, New Jersey: Merck & Co., Inc., 1976., p. 2] **PEER REVIEWED**

BEST DESCRIBED AS "HETEROPOLYMOLECULAR" IS NOT VERY VISCOUS [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312] **PEER REVIEWED**

THE MOST RECENT, CAREFUL STUDY OF THE EXUDATE FROM ACACIA SENEGAL HAS SHOWN AVG MOL WT OF ABOUT 600,000 [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312]

PEER REVIEWED

PARTIAL HYDROLYSIS MAY OCCUR @ LOW PH [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 313] **PEER REVIEWED**

QUALITATIVE BREAKDOWN OF SUGARS BY %: 30.3 L-ARABINOSE, 11.4 L-RHAMNOSE, 36.8 D-GALACTOSE, 13.8 D-GLUCURONIC ACID [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312] **PEER REVIEWED**

Combustible...when heated to decomposition it emits acrid smoke [Sax, N.I. Dangerous Properties of Industrial Materials. Vol 1-3 7th ed. New York, NY: Van Nostrand Reinhold, 1989., p. 289] **PEER REVIEWED**

A carbohydrate polymer, complex and highly branched. The central core or nucleus is D-galactose and D-glucuronic acid (actually the calcium, magnesium, and potassium salts), to which are attached sugars such as L-arabinose and L-rhamnose [Lewis, R.J., Sr (Ed.). Hawley's Condensed Chemical Dictionary. 13th ed. New York, NY: John Wiley & Sons, Inc. 1997., p. 89] **PEER REVIEWED**

CHEMICAL SAFETY & HANDLING:

FIRE POTENTIAL:

SLIGHT. [Sax, N.I. Dangerous Properties of Industrial Materials. 5th ed. New York: Van Nostrand Rheinhold, 1979., p. 331] **PEER REVIEWED**

PREVENTIVE MEASURES:

PROVISIONS OF BETTER VENTILATION IN PRINTING SHOPS USING GUM ARABIC HAS NOT GIVEN SATISFACTORY RESULTS. THEREFORE THE USE OF GUM ARABIC ANTI-OFFSET SOLN HAS BEEN ABANDONED IN MOST COUNTRIES IN FAVOR OF POWDERED CHALK. [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

SUBSTITUTION OF GUM ARABIC BY LESS HAZARDOUS SUBSTANCES HAS LED TO...TOTAL ELIMINATION OF NEW CASES OF PRINTER'S ASTHMA, AND IN ALL CASES OF ASTHMA, CESSATION OF EXPOSURE HAS LED TO THE DISAPPEARANCE OF SYMPTOMS IN PERSONS SUFFERING FROM THE DISEASE. [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

STABILITY/SHELF LIFE:

EMULSIONS PREPD WITH ACACIA ARE STABLE OVER WIDE PH RANGE [Osol, A. and J.E. Hoover, et al. (eds.). Remington's Pharmaceutical Sciences. 15th ed. Easton, Pennsylvania: Mack Publishing Co., 1975., p. 333] **PEER

REVIEWED**

DISPOSAL METHODS:

SRP: At the time of review, criteria for land treatment or burial (sanitary landfill) disposal practices are subject to significant revision. Prior to implementing land disposal of waste residue (including waste sludge), consult with environmental regulatory agencies for guidance on acceptable disposal practices. **PEER REVIEWED**

OCCUPATIONAL EXPOSURE STANDARDS:

MANUFACTURING/USE INFORMATION:

MAJOR USES:

DEMULCENT IN COUGH MIXTURES AND EMULSIONS; IN PREPN OF LOZENGES; BINDING MEDIUM FOR FLAMMABLE MATERIALS OF MATCHES; IN MFR OF WATER COLORS; HAS BEEN EMPLOYED IN COLOR PRINTING AS ANTI-OFFSET AGENT [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

ADHESIVE FOR ICINGS AND TOPPINGS; FOAM STABILIZER IN BEVERAGES [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 311] **PEER REVIEWED**

RETARDER OF SUGAR CRYSTALLIZATION IN CONFECTIONERIES; STABILIZER IN DAIRY & BAKERY PRODUCTS; FLAVOR FIXATIVE & EMULSIFIER; PROTECTIVE COLLOID IN PHARMACEUTICALS, COSMETICS, & INKS; EMULSIFIER IN CONFECTIONERIES [SRI] **PEER REVIEWED**

Mucilage, excipient for tablets, size, emulsifer, thickener, also in candy, other foods; as colloidal stabilizer; demulcent. In the manufacture of spray-dried "fixed" flavors - stable, powdered flavors used in packaged dry-mix products (puddings, desserts, cake mixes) where flavor stability and long shelf life are important. [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 4] **PEER REVIEWED**

MEDICATION **PEER REVIEWED**

MEDICATION (VET) **PEER REVIEWED**

Currently, its major use is in foods, where it performs many functions, e.g.,, as a suspending or emulsifying agent. stabilizer. adhesive, and flavor fixative and to prevent crystallization of sugar, among others. It is used in practically all categories of processed foods, including candy,

snack foods, alcoholic and nonalcoholic beverages, baked goods, frozen dairy desserts, gelatins and puddings, imitation dairy products. breakfast cereals, and fats and oils, among others. Its use levels range from < 0.004% (40 ppm) in soups and milk products to 0.7-2.9% in nonalcoholic beverages, imitation dairy, and snack foods to as high as 45% in candy products. [Leung, A.Y., Foster, S. Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics. New York, NY. John Wiley & Sons, Inc. 1996., p. 5] **PEER REVIEWED**

Pharmaceuticals, adhesives, inks, textile printing, cosmetics, thickening agent and colloidal stabilizer in confectionery and food products, binding agent in tablets, emulsifier. [Lewis, R.J., Sr (Ed.). Hawley's Condensed Chemical Dictionary. 13th ed. New York, NY: John Wiley & Sons, Inc. 1997., p. 89] **PEER REVIEWED**

MANUFACTURERS:

NOT PRODUCED IN THE US [SRI] **PEER REVIEWED**

METHODS OF MANUFACTURING:

COLLECTED FROM BREAKS OR WOUNDS IN THE OUTER BARK OF THE ACACIA TREE, MAINLY ACACIA SENEGAL [SRI] **PEER REVIEWED**

...comes from various species of Acacia...the gum exudes through cracks, injuries, and incisions in the bark and is collected by hand as dried tears. [Kirk-Othmer Encyclopedia of Chemical Technology. 4th ed. Volumes 1: New York, NY. John Wiley and Sons, 1991-Present., p. V4 (92) 943] **PEER REVIEWED**

GENERAL MANUFACTURING INFORMATION:

GUM IS EXUDED THROUGH...WOUNDS IN BARK IN FORM OF TEARS, OR DROPS WHICH RAPIDLY HARDEN DUE TO EVAPORATION. MOST OF GUM...PRODUCTION IS FROM WILD TREES... WILD GUM (CALLED HASHAB WADY) IS COLLECTED ON A PART TIME BASIS IN...DRY SEASON FROM OCTOBER TO MAY OR JUNE... [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 311] **PEER REVIEWED**

...PRIVATELY OWNED CULTIVATED GARDENS...ARE TAPPED AND COLLECTED ON SYSTEMATIC BASIS. THIS GUM, CALLED HASHAB GENEINA (GARDEN GUM), IS CLEANEST AND LIGHTEST GRADE, AND IS MOST PREFERRED FOR US MARKET. [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312] **PEER REVIEWED**

AFTER GATHERING, IT IS TAKEN TO CENTRAL COLLECTING STATIONS WHERE IT IS AUCTIONED UNDER GOVERNMENT SUPERVISION, GRADED BY HAND AND DRIED, BEFORE EXPORTING TO GUM SUPPLIERS IN ALL PARTS OF WORLD. THERE IT IS RESORTED, GROUND, PROCESSED, AND GRADED TO VARIOUS SPECIFICATIONS. [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312] **PEER REVIEWED**

PRINCIPAL CONSTITUENTS OF VARIOUS TYPES OF GUM ARABIC, INCL GUMS FROM...BLUE NILE DISTRICT, FROM KORDOFAN, SENNAR, SOMALIA & ETHIOPIA ARE CALCIUM (WITH TRACES OF MAGNESIUM & POTASSIUM), SALTS OF ARABIN & ARABIC ACID...& WATER. ...ALSO...TANNIN, SUGAR & ENZYMES & ITS COMPOSITION IS SIMILAR TO THAT OF PECTINS. [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

THE GUMMY EXUDATION LOSES ABOUT 15% OF WATER BY EVAPORATION AND IS EXPORTED IN FORM OF ROUND OR OVAL TEARS HAVING A MATT SURFACE AND WHICH BREAKS WITH A VITREOUS FRACTURE SIMILAR TO GLASS. [International Labour Office. Encyclopedia of Occupational Health and Safety. Volumes I and II. New York: McGraw-Hill Book Co., 1971., p. 629] **PEER REVIEWED**

IN WEST AFRICA THE GUM IS ALSO COLLECTED FROM ACACIA SENEGAL AND IS USUALLY CALLED SENEGAL GUM. IT IS MORE YELLOW, OR REDDISH, THAN KORDOFAN OR SUDAN GUM AND IS REGARDED AS BEING LESS ADHESIVE AND MORE VISCOUS. IT IS USED EXTENSIVELY IN EUROPE. [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312] **PEER REVIEWED**

BESIDES BEING CALLED KORDOFAN, SUDAN, OR SENEGAL GUM, GUM ARABIC HAS A GREAT MANY OTHER NAMES, BASED ON GEOGRAPHICAL OR BOTANICAL ORIGIN, OR PHYSICAL CHARACTERISTIC OF THE GUM ITSELF. [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312] **PEER REVIEWED**

Incompatibilities: precipitates or jellies result upon addition of soln of ferric salts, borax, basic lead acetate (lead sub-acetate, but not neutral lead acetate), alcohol, sodium silicate, gelatin, ammoniated tincture of guaiac. [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

INCOMPATIBILITIES: ALC & ALCOHOLIC SOLN PRECIPITATE ACACIA AS STRINGY MASS WHEN ALC AMT TO MORE THAN ABOUT 35% OF TOTAL VOL. SOLN IS EFFECTED BY DILUTION WITH WATER. MUCILAGE IS DESTROYED THROUGH PRECIPITATION OF ACACIA BY HEAVY METALS. ... ACACIA CONTAINS CALCIUM &, THEREFORE, POSSESSES INCOMPATIBILITIES FOR THIS ION. [Osol, A. and J.E. Hoover, et al. (eds.). Remington's Pharmaceutical Sciences. 15th ed. Easton, Pennsylvania: Mack Publishing Co., 1975., p. 1242] **PEER REVIEWED**

INCOMPATIBILITIES: ACACIA CONTAINS PEROXIDASE WHICH ACTS AS OXIDIZING AGENT & PRODUCES COLORED DERIVATIVES OF AMINOPYRINE, ANTIPYRINE, CRESOL, GUAIACOL, PHENOL, TANNIN, THYMOL, VANILLIN, & OTHER SUBSTANCES. [Osol, A. and J.E. Hoover, et al. (eds.). Remington's Pharmaceutical Sciences. 15th ed. Easton, Pennsylvania: Mack Publishing Co., 1975., p. 1242] **PEER REVIEWED**

INCOMPATIBILITIES: ACACIA CONTAINS PEROXIDASE WHICH ACTS AS OXIDIZING AGENT & PRODUCES COLORED DERIVATIVES...ALKALOIDS AFFECTED ARE ATROPINE, APOMORPHINE, COCAINE, HOMATROPINE, HYOSCYAMINE, MORPHINE, PHYSOSTIGMINE, & SCOPOLAMINE. PARTIAL DESTRUCTION OF ALKALOID OCCURS IN REACTION. [Osol, A. and J.E. Hoover, et al. (eds.). Remington's Pharmaceutical Sciences. 15th ed. Easton, Pennsylvania: Mack Publishing Co., 1975., p. 1242] **PEER REVIEWED**

Acacia was originally thought to be composed only of (-)-arabinose, (+)-galactose, (-)-rhamnose, (+)-glycuronic acid. Revised composition and structural studies: Anderson et al, J Chem Soc (c) 1966, 1959. [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

ACACIA IS A CARBOHYDRATE GUM... BECAUSE IT IS A CARBOHYDRATE IT IS NECESSARY TO PRESERVE ACACIA EMULSIONS AGAINST MICROBIAL ATTACK BY USE OF SUITABLE PRESERVATIVE. [Osol, A. and J.E. Hoover, et al. (eds.). Remington's Pharmaceutical Sciences. 15th ed. Easton, Pennsylvania: Mack Publishing Co., 1975., p. 333] **PEER REVIEWED**

Estimations of mol wt range from about 240,000. [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

Grades of kordofan gum which are commercial variety. Grades of kordofan gum which are clear, white (sun bleached) and tasteless are preferred for food prepn and pharmaceuticals. (There is close relationship between color and flavor due to presence of tannins.) [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

EXTENSIVELY AS SUSPENDING AGENT FOR INSOL SUBSTANCES IN WATER, IN PREPN OF EMULSIONS, & FOR MAKING PILLS & TROCHES. IT IS USED FOR ITS DEMULCENT ACTION IN INFLAMMATIONS OF THROAT OR STOMACH. [Osol, A. and J.E. Hoover, et al. (eds.). Remington's Pharmaceutical Sciences. 15th ed. Easton, Pennsylvania: Mack Publishing Co., 1975., p. 1242] **PEER REVIEWED**

BESIDES BEING CALLED KORDOFAN, SUDAN, OR SENEGAL GUM, GUM ARABIC HAS A GREAT MANY OTHER NAMES, BASED ON GEOGRAPHICAL OR BOTANICAL ORIGIN, OR PHYSICAL CHARACTERISTIC OF THE GUM ITSELF. [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 312] **PEER REVIEWED**

FEMA NUMBER 2001 [Furia, T.E. (ed.). CRC Handbook of Food Additives. 2nd ed. Cleveland: The Chemical Rubber Co., 1972., p. 784] **PEER REVIEWED**

The dried, water-soluble exudate from the stems of Acacia senegal or related species. [Lewis, R.J., Sr (Ed.). Hawley's Condensed Chemical Dictionary. 13th ed. New York, NY: John Wiley & Sons, Inc. 1997., p. 89] **PEER REVIEWED**

FORMULATIONS/PREPARATIONS:

ACACIA, USP (GUM ARABIC)... ACACIA SYRUP, NF, IS VANILLA-FLAVORED SYRUP THAT CONTAINS 10% ACACIA. ... IT IS ALSO INCORPORATED IN LOZENGES. [Goodman, L.S., and A. Gilman. (eds.) The Pharmacological Basis of Therapeutics. 5th ed. New York: Macmillan Publishing Co., Inc., 1975., p. 946] **PEER REVIEWED**

ACACIA MUCILAGE NF XII [MUCILAGE OF GUM ARABIC]... DEMULCENT & SUSPENDING AGENT. ...AS EXCIPIENT IN MAKING PILLS & TROCHES, & AS EMULSIFYING AGENT FOR COD LIVER OIL & OTHER SUBSTANCES. CAUTION- ACACIA MUCILAGE MUST BE FREE FROM MOLD OR ANY OTHER INDICATION OF DECOMP.[Osol, A. and J.E. Hoover, et al. (eds.). Remington's Pharmaceutical Sciences. 15th ed. Easton, Pennsylvania: Mack Publishing Co., 1975., p. 1246] **PEER REVIEWED**

Grades: USP; FCC (Both grades as Acacia). [Lewis, R.J., Sr (Ed.). Hawley's Condensed Chemical Dictionary. 13th ed. New York, NY: John Wiley & Sons, Inc. 1997., p. 89] **PEER REVIEWED**

Moisture content usually varies from 13-15%; USP limit 15% [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

CONSUMPTION PATTERNS:

OVER 50% AS AN EMULSIFIER & RETARDER OF SUGAR CRYSTALLIZATION IN CONFECTIONERIES, AS A STABILIZER IN DAIRY & BAKERY PRODUCTS & AS A FLAVOR FIXATIVE & EMULSIFIER; THE REMAINDER AS A PROTECTIVE COLLOID IN PHARMACEUTICALS & COSMETICS, & IN MISC APPLICATIONS (1975) [SRI] **PEER REVIEWED**

U. S. PRODUCTION:

(1972) NOT PRODUCED IN THE US [SRI] **PEER REVIEWED**

(1975) NOT PRODUCED COMMERCIALLY IN US [SRI] **PEER REVIEWED**

U. S. IMPORTS:

(1972) 1.45X10+10 G [SRI] **PEER REVIEWED**

(1973) 7.62X10+9 G [SRI] **PEER REVIEWED**

LABORATORY METHODS:

ANALYTIC LABORATORY METHODS:
DAIRY PRODUCTS; GUMS, INFRARED METHOD- OFFICIAL FINAL ACTION. [Association of Official Analytical Chemists. Official Methods of Analysis. 10th ed. and supplements. Washington, DC: Association of Official Analytical Chemists, 1965. New editions through 13th ed. plus supplements, 1982., p. 13/273 16.290] **PEER REVIEWED**

SPECIAL REFERENCES:

SPECIAL REPORTS:
DHHS/NTP; Carcinogenesis Bioassay of Gum Arabic in F344 Rats and B6C3F1 Mice (Feed Study) Technical Report Series No. 227 (1982) NIH Publication No. 82-1783

SYNONYMS AND IDENTIFIERS:

SYNONYMS:
ACACIA DEALBATA GUM **PEER REVIEWED**

ACACIA GUM **PEER REVIEWED**

ACACIA SENEGAL **PEER REVIEWED**

ACACIA SYRUP **PEER REVIEWED**

ARABIC GUM **PEER REVIEWED**

AUSTRALIAN GUM **PEER REVIEWED**

GUM ACACIA **PEER REVIEWED**

GUM ARABIC **PEER REVIEWED**

GUM DRAGON [Rossoff, I.S. Handbook of Veterinary Drugs. New York: Springer Publishing Company, 1974., p. 1] **PEER REVIEWED**

GUM OVALINE **PEER REVIEWED**

GUM SENEGAL **PEER REVIEWED**

INDIAN GUM **PEER REVIEWED**

SENEGAL GUM **PEER REVIEWED**

STARSOL NO 1 **PEER REVIEWED**

WATTLE GUM **PEER REVIEWED**

FORMULATIONS/PREPARATIONS:

ACACIA, USP (GUM ARABIC)... ACACIA SYRUP, NF, IS VANILLA-FLAVORED SYRUP THAT CONTAINS 10% ACACIA. ... IT IS ALSO INCORPORATED IN LOZENGES. [Goodman, L.S., and A. Gilman. (eds.) The Pharmacological Basis of Therapeutics. 5th ed. New York: Macmillan Publishing Co., Inc., 1975., p. 946] **PEER REVIEWED**

ACACIA MUCILAGE NF XII [MUCILAGE OF GUM ARABIC]... DEMULCENT & SUSPENDING AGENT. ...AS EXCIPIENT IN MAKING PILLS & TROCHES, & AS EMULSIFYING AGENT FOR COD LIVER OIL & OTHER SUBSTANCES. CAUTION- ACACIA MUCILAGE MUST BE FREE FROM MOLD OR ANY OTHER INDICATION OF DECOMP.[Osol, A. and J.E. Hoover, et al. (eds.). Remington's Pharmaceutical Sciences. 15th ed. Easton, Pennsylvania: Mack Publishing Co., 1975., p. 1246] **PEER REVIEWED**

Grades: USP; FCC (Both grades as Acacia). [Lewis, R.J., Sr (Ed.). Hawley's Condensed Chemical Dictionary. 13th ed. New York, NY: John Wiley & Sons, Inc. 1997., p. 89] **PEER REVIEWED**

Moisture content usually varies from 13-15%; USP limit 15% [Budavari, S. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 3] **PEER REVIEWED**

ADMINISTRATIVE INFORMATION:

HAZARDOUS SUBSTANCES DATABANK NUMBER: 1914

LAST REVISION DATE: 20020513

LAST REVIEW DATE: Reviewed by SRP on 9/14/2000

UPDATE HISTORY:

Complete Update on 05/13/2002, 1 field added/edited/deleted.

Complete Update on 05/15/2001, 1 field added/edited/deleted.

Complete Update on 12/12/2000, 24 fields added/edited/deleted.

Complete Update on 08/26/1999, 1 field added/edited/deleted.

Complete Update on 06/03/1999, 1 field added/edited/deleted.

Complete Update on 03/18/1998, 7 fields added/edited/deleted.

Field Update on 10/23/1997, 1 field added/edited/deleted.

Field Update on 05/01/1997, 2 fields added/edited/deleted.

Complete Update on 10/15/1996, 1 field added/edited/deleted.

Complete Update on 01/23/1996, 1 field added/edited/deleted.

Complete Update on 04/20/1995, 1 field added/edited/deleted.

Complete Update on 04/20/1995, 1 field added/edited/deleted.

Complete Update on 12/28/1994, 1 field added/edited/deleted.

Complete Update on 10/27/1994, 2 fields added/edited/deleted.

Complete Update on 10/19/1994, 1 field added/edited/deleted.

Complete Update on 03/25/1994, 1 field added/edited/deleted.

Complete Update on 09/02/1993, 1 field added/edited/deleted.

Complete Update on 04/27/1993, 1 field added/edited/deleted.

Field update on 12/22/1992, 1 field added/edited/deleted.

Complete Update on 09/03/1992, 1 field added/edited/deleted.

Complete Update on 09/26/1991, 1 field added/edited/deleted.

Complete Update on 10/02/1990, 1 field added/edited/deleted.

Complete Update on 09/23/1988, 1 field added/edited/deleted.

1. BEZEICHNUNG DES STOFFES BZW. DER ZUBEREITUNG UND DES UNTERNEHMENS

Handelsname **Gummi arabicum**

Hersteller / Lieferant

Alfred L. Wolff GmbH
Schnackenburgallee 50, D-22525 Hamburg / Germany
Telefon +49(0)40-37676-0, Telefax +49(0)40-37676-100

E-Mail smeixner@alwolff.de
Internet www.alwolff.com

Auskunftgebender Bereich

Qualitätsmanagement / Quality Management
Telefon +49(0)40 - 37676 134

Empfohlene(r) Verwendungszweck(e)
Zusatzstoff für die Lebensmittel-, Arznei-, Kosmetik- und Papierindustrie.

2. MÖGLICHE GEFAHREN

Besondere Gefahrenhinweise für Mensch und Umwelt
Kein gefährliches Produkt im Sinne der Richtlinie 67/548/EWG

3. ZUSAMMENSETZUNG/ANGABEN ZU BESTANDTEILEN

Chemische Charakterisierung
natürliches Polysaccharid
Getrocknetes Exsudat von Acacia senegal oder Acacia seyal.

Zusätzliche Hinweise
Gummi arabicum CAS-Nr. 9000-01-5; EG-Nr. 232-519-5 ; E-Nr: E 414

4. ERSTE-HILFE-MASSNAHMEN

Allgemeine Hinweise
nicht relevant.

Nach Einatmen
nicht relevant.

Nach Hautkontakt
nicht relevant.

Nach Augenkontakt
Bei Berührung mit den Augen gründlich mit viel Wasser spülen. Bei anhaltenden Beschwerden Arzt konsultieren.

Nach Verschlucken
nicht relevant.

5. MASSNAHMEN ZUR BRANDBEKÄMPFUNG

Geeignete Löschmittel
Alle Löschmittel geeignet.
Schaum
Trockenlöschmittel
Wassersprühstrahl

Besondere Gefährdungen durch den Stoff oder die Zubereitung selbst, seine Verbrennungsprodukte oder entstehende Gase
Bei Brand kann freigesetzt werden:
Kohlenmonoxid (CO)
Kohlendioxid (CO2)

Besondere Schutzausrüstung bei der Brandbekämpfung
Unabhängiges Atemschutzgerät (Isoliergerät) verwenden.

Sonstige Hinweise
Gefährdete Behälter mit Wassersprühstrahl kühlen.
Kontaminiertes Löschwasser getrennt sammeln, darf nicht in die Kanalisation gelangen.

6. MASSNAHMEN BEI UNBEABSICHTIGTER FREISETZUNG

Personenbezogene Vorsichtsmaßnahmen
Staubbildung vermeiden.

Umweltschutzmaßnahmen
Nicht konzentriert in die Kanalisation/Oberflächenwasser/Grundwasser gelangen lassen.

Verfahren zur Reinigung
Mechanisch aufnehmen und der Entsorgung zuführen.

7. HANDHABUNG UND LAGERUNG

Hinweise zum sicheren Umgang
Von Zündquellen fernhalten - nicht rauchen.
Staubbildung und Staubablagerung vermeiden.

Hinweise zum Brand- und Explosionsschutz
Das Produkt ist unter bestimmten Bedingungen staubexplosionsfähig.

Weitere Angaben zu den Lagerbedingungen
Vor Lichteinwirkung schützen.
Vor direkter Sonneneinstrahlung schützen.
Behälter an einem kühlen, gut gelüfteten Ort aufbewahren.

8. BEGRENZUNG UND ÜBERWACHUNG DER EXPOSITION/PERSÖNLICHE SCHUTZAUSRÜSTUNG

Zusätzliche Hinweise zur Gestaltung technischer Anlagen
Staubbildung vermeiden

Bestandteile mit arbeitsplatzbezogenen, zu überwachenden Grenzwerten

CAS-Nr.	Bezeichnung	Art	[mg/m3]	[ml/m3]	Spitzenb.	Bemerkung
	Allgemeiner Staubgrenzwert (siehe auch Nummer 2.4) Alveolengängige Fraktion	8 Stunden	3		2(II)	AGS
	Allgemeiner Staubgrenzwert (siehe auch Nummer 2.4) Einatembare Fraktion	8 Stunden	10		2(II)	AGS

Atemschutz
Bei Staubentwicklung Feinstaubmaske tragen.

Handschutz
nicht erforderlich

Augenschutz
nicht erforderlich

Körperschutz
Arbeitschutzkleidung

Allgemeine Schutzmaßnahmen
nicht anwendbar

Hygienemaßnahmen
Die allgemeinen arbeitshygienischen Vorschriften beachten.
Bei der Arbeit nicht rauchen, essen oder trinken.
Vor den Pausen und bei Arbeitsende Hände waschen.

9. PHYSIKALISCHE UND CHEMISCHE EIGENSCHAFTEN

Form	**Farbe**	**Geruch**
Pulver	weisslich	geruchlos

Wichtige Angaben zum Gesundheits- und Umweltschutz sowie zur Sicherheit

	Wert	Temperatur	bei	Methode	Bemerkung
pH-Wert im Lieferzustand	ca. 4,5	20 °C	100 g/l		in Wasser
Flammpunkt	> 250 °C				
Untere Explosionsgrenze	nicht bestimmt				
Obere Explosionsgrenze	nicht bestimmt				
Schüttdichte	600 kg/m3				
Löslichkeit in Wasser	30 - 40 % weight	20 °C			löslich
Löslichkeit / Andere			Ethanol		nicht löslich

10. STABILITÄT UND REAKTIVITÄT

Zu vermeidende Bedingungen
Die Anreicherung von Feinstaub kann in Gegenwart von Luft zu Staubexplosionsgefahr führen.

Zu vermeidende Stoffe
Keine Angaben vorhanden

Gefährliche Zersetzungsprodukte
Betreffend möglicher Zersetzungsprodukte siehe Abschnitt 5.

Thermische Zersetzung

Bemerkung Keine Zersetzung bei bestimmungsgemässer Verwendung.

11. TOXIKOLOGISCHE ANGABEN

Akute Toxizität/Reizwirkung / Sensibilisierung

	Wert/Bewertung	Spezies	Methode	Bemerkung
LD50 Akut Oral	> 16000 mg/kg	Ratte		RTECS Number CE5945000

Erfahrungen aus der Praxis
Bei sachgemäßem Umgang und bestimmungsgemäßer Verwendung verursacht das Produkt nach unseren Erfahrunge und den uns vorliegenden Informationen keine gesundheitsschädlichen Wirkungen.

12. UMWELTBEZOGENE ANGABEN

Allgemeine Hinweise
Bei sachgemäßer Handhabung und Verwendung sind keine ökologischen Probleme zu erwarten.

13. HINWEISE ZUR ENTSORGUNG

Empfehlung für das Produkt
Es liegen keine einheitlichen Bestimmungen zur Entsorgung von Chemikalien bzw. Reststoffen in den Mitgliedstaaten der EU vor. In Deutschland ist durch das Kreislaufwirtschafts- und Abfallgesetz (KrW/AbfG) das Verwertungsgebot festgeschrieben.
Dementsprechend sind "Abfälle zur Verwertung" und "Abfälle zur Beseitigung" zu unterscheiden. Besonderheiten - insbesonders bei der Anlieferung - werden darüber hinaus auch durch die Bundesländer geregelt.

Empfehlung für die Verpackung
Vollständig entleerte Verpackungen können einem Recycling zugeführt werden.

Empfohlenes Reinigungsmittel
Wasser

14. ANGABEN ZUM TRANSPORT

Weitere Angaben zum Transport
Kein Gefahrgut im Sinne der Verordnungen.

15. RECHTSVORSCHRIFTEN

Hinweise zur Kennzeichnung
Das Produkt ist nach EG-Richtlinien/GefStoffV nicht kennzeichnungspflichtig.

Nationale Vorschriften

Wassergefährdungsklasse	1	Selbsteinstufung schwach wassergefährdend

16. SONSTIGE ANGABEN

Weitere Informationen
Die Angaben stützen sich auf den heutigen Stand unserer Kenntnisse und dienen dazu, das Produkt im Hinblick auf die zu treffenden Sicherheitsvorkehrungen zu beschreiben. Sie stellen keine Zusicherung von Eigenschaften des beschriebenen Produktes dar.

Quellen der wichtigsten Daten
RTECS :Registry of Toxic Effects of Chemical Substances