Material Safety Data Sheet

Givaudan

Section 1. Chemical product and company identification

Product name : **NATURAL CITRUS ENHANCER**

Product code : **D6230 (17804ACN)**

Supplier : Givaudan Flavors Corporation
1199 Edison Road
Cincinnati, OH 45216

In case of emergency : Chem Trec 1-800-424-9300

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Section 2. Composition, information on ingredients

Trade secret.	50 - <75	**ACGIH TLV (United States, 2004). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Refers to Appendix A -- Carcinogens.** CEIL: 45 mg/m^3 Form: All forms CEIL: 25 ppm Form: All forms **OSHA PEL (United States, 1993).** TWA: 360 mg/m^3 8 hour/hours. Form: All forms TWA: 200 ppm 8 hour/hours. Form: All forms **OSHA PEL 1989 (United States, 1989).** STEL: 270 mg/m^3 15 minute/minutes. Form: All forms STEL: 150 ppm 15 minute/minutes. Form: All forms TWA: 180 mg/m^3 8 hour/hours. Form: All forms TWA: 100 ppm 8 hour/hours. Form: All forms
Trade secret.	25 - <50	**ACGIH TLV (United States, 2004). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.** TWA: 1880 mg/m^3 8 hour/hours. Form: All forms TWA: 1000 ppm 8 hour/hours. Form: All forms **NIOSH REL (United States, 2001).** TWA: 1900 mg/m^3 10 hour/hours. Form: All forms TWA: 1000 ppm 10 hour/hours. Form: All forms **OSHA PEL (United States, 1993).** TWA: 1900 mg/m^3 8 hour/hours. Form: All forms TWA: 1000 ppm 8 hour/hours. Form: All forms **OSHA PEL 1989 (United States, 1989).** TWA: 1900 mg/m^3 8 hour/hours. Form: All forms TWA: 1000 ppm 8 hour/hours. Form: All forms

Section 3. Hazards identification

Physical state : Liquid.

Color : Colorless.

Emergency overview : Warning!

CAUSES SEVERE RESPIRATORY TRACT AND EYE IRRITATION.
CAUSES SKIN IRRITATION.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: REPRODUCTIVE SYSTEM, LIVER, GASTROINTESTINAL TRACT, RESPIRATORY TRACT, SKIN, EYES, CENTRAL NERVOUS SYSTEM, THROAT.
FLAMMABLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
MAY BE HARMFUL IF SWALLOWED.
CONTAINS MATERIAL WHICH MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS.
POSSIBLE CANCER HAZARD
CONTAINS MATERIAL WHICH CAN CAUSE CANCER

Do not ingest. Avoid contact with skin and clothing. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure.

Routes of entry : Skin contact Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eyes : Severely irritating to eyes.

Skin : Irritating to skin.

Inhalation : Severely irritating to the respiratory system.

Ingestion : Harmful if swallowed.

Potential chronic health effects : **CARCINOGENIC EFFECTS**: Classified 2B (Possible for humans.) by IARC. Classified 2 (Reasonably anticipated to be human carcinogens.) by NTP.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to the substance can produce target organs damage.

Over-exposure signs/symptoms : Not available.

See toxicological information (section 11)

Section 4. First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation : Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Ingestion : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Section 5. Fire fighting measures

Flammability of the product : Flammable.

Auto-ignition temperature : The lowest known value is 175°C (347°F).

Flash points : Closed cup: <-10°C (14°F). (Tag)

Flammable limits : The greatest known range is Lower: 4% Upper: 57% (ACETALDEHYDE)

Products of combustion : These products are carbon oxides (CO, CO_2).

Fire hazards in the presence of various substances : Not available.

Explosion hazards in the presence of various substances : Not available.

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

Fire/explosion hazards : Flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Not available.

Special remarks on explosion hazards : Not available.

Section 6. Accidental release measures

Personal precautions : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment. Do not touch or walk through spilled material.

Environmental precautions and clean-up methods : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion-proof means to transfer material to a sealable, appropriate container for disposal. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

Section 7. Handling and storage

Handling : Do not ingest. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling.

Storage : Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8. Exposure controls, personal protection

Engineering controls : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Eyes : Safety glasses. Goggles, face shield or other full-face protection should be worn if there is a risk of direct exposure to aerosols or splashes.

Skin : Additional body garments should be used to avoid exposed skin surfaces (e.g. sleevelets, apron, disposable suit etc.), based on the task being performed. Appropriate techniques should be used to remove potentially contaminated clothing.

Respiratory : Use appropriate respiratory protection if there is a risk of exceeding any exposure limits.

Hands : Use chemical-resistant, impervious gloves.

Personal protective equipment (Pictograms) : Not available.

Section 9. Physical and chemical properties

Physical state : Liquid.

Color : Colorless.

Odor : Not available.

Boiling point : <20 °C (<68 °F)

Melting/freezing point : Not available.

Specific gravity

20/4 : 0.879

20/20 : 0.881 (Measured)

25/25 : 0.878 (Measured)

Vapor pressure : 99 kPa (742.599 mm Hg) (at 20 °C) [Trade secret.]

Vapor density : The highest known value is 1.6 (Air = 1)

Solubility : Soluble in cold water.

Physical/chemical properties comments : Not available.

Section 10. Stability and reactivity

Stability and reactivity : The product is stable.

Section 11. Toxicological information

Toxicity data

Not determined.

Chronic effects on humans : **CARCINOGENIC EFFECTS**: Classified 2B (Possible for humans.) by IARC. Classified 2 (Reasonably anticipated to be human carcinogens.) by NTP.
DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [PROVEN].
Contains material which causes damage to the following organs: the reproductive system, liver, gastrointestinal tract, upper respiratory tract, skin, eyes, central nervous system (CNS), throat.
Contains material which may cause damage to the following organs: kidneys.

Other toxic effects on humans : Hazardous in case of ingestion.
Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation (lung irritant).

Special remarks on toxicity to animals : Liquid and vapor is irritating to skin and eyes. Irritating to respiratory system. Breathing of vapor may cause anesthetic effects. Capable of producing severe eye burns. Prolonged inhalation of vapors at levels well above the Permitted Exposure Level has caused numerous effects on laboratory animals which seem to be a result of the strong irritation properties. May cause cancer in nose of rats above irritation threshold. Powerful, penetrating odor may limit voluntary exposure. Liquid and vapor may be irritating to skin and eyes. Breathing high concentrations of vapor may cause anesthetic effects. This substance has been shown to cause liver tumors to laboratory animals. The effects in humans are unknown. Excessive exposure may be hazardous to health. Reproductive effects Can cause gastrointestinal disturbances.

Special remarks on chronic effects on humans : Liquid and vapor is irritating to skin and eyes. Irritating to respiratory system. Prolonged inhalation of vapors at levels well above the Permitted Exposure Level has caused numerous effects on laboratory animals which seem to be a result of the strong irritation properties. Powerful, penetrating odor may limit voluntary exposure. Reproductive toxicity Developmental toxicity Liquid and vapor may be irritating to skin and eyes. Breathing high concentrations of vapor in excess of the Permitted Exposure Level may cause headache, nervousness, dizziness, tremors, fatigue, nausea and necrosis. Can cause gastrointestinal disturbances. Reproductive effects Over-exposure may cause serious liver disorders. May cause tumors.

Special remarks on other toxic effects on humans : Breathing of vapor may cause anesthetic effects. Capable of producing severe eye burns. Liquid and vapor is irritating to skin and eyes. Irritating to respiratory system. Powerful, penetrating odor may limit voluntary exposure. MAY CAUSE HERITABLE GENETIC EFFECTS. Liquid and vapor may be irritating to skin and eyes. Breathing high concentrations of vapor in excess of the Permitted Exposure Level may cause headache, nervousness, dizziness, tremors, fatigue, nausea and necrosis. Reproductive effects Over-exposure may cause serious liver disorders.

Specific effects

Carcinogenic effects : May cause tumors.

Reproduction toxicity : No known significant effects or critical hazards.

Chronic effects : No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.

Target organs : Contains material which causes damage to the following organs: the reproductive system, liver, gastrointestinal tract, upper respiratory tract, skin, eyes, central nervous system (CNS), throat. Contains material which may cause damage to the following organs: kidneys.

MIXTURES HAVE NOT BEEN TESTED FOR HEALTH HAZARDS. THE HEALTH HAZARD INFORMATION PRESENTED IS PROVIDED IN ACCORDANCE WITH 29 CFR 1910.1200 AND IS BASED ON THE TESTING OF INDIVIDUAL COMPONENTS WHICH HAVE BEEN SHOWN TO CAUSE OR MAY CAUSE THESE HEALTH EFFECTS WHEN TESTED AT HIGHER CONCENTRATIONS OR AT FULL STRENGTH.

Section 12. Ecological information

Products of degradation : These products are carbon oxides (CO, CO_2) and water.

Section 13. Disposal considerations

General information : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Waste stream : Not available.

Consult your local or regional authorities.

Section 14. Regulatory Information

SARA 313

Form R - Reporting requirements : Trade secret. 75-07-0 50 - 75

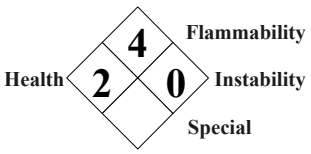
Supplier notification : This product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

Section 15. Other Information

Hazardous Material Information System (U.S.A.)

Health	*	3
Fire hazard		4
Reactivity		0
Personal protection		X

National Fire Protection Association (U.S.A.)



THIS MIXTURE CONTAINS ETHANOL (CASRN 64-17-5) AT A CONCENTRATION OF 1.0% OR GREATER.

THE INTERNATIONAL AGENCY FOR RESEARCH FOR CANCER (IARC) HAS CONCLUDED; "THERE IS INADEQUATE EVIDENCE FOR THE CARCINOGENICITY OF ETHANOL AND OF ALCOHOLIC BEVERAGES IN EXPERIMENTAL ANIMALS. THERE IS SUFFICIENT EVIDENCE FOR THE CARCINOGENICITY OF ALCOHOLIC BEVERAGES IN HUMANS. THE OCCURRENCE OF MALIGNANT TUMORS OF THE ORAL CAVITY, PHARYNX, LARYNX, ESOPHAGUS AND LIVER IS CAUSALLY RELATED TO THE CONSUMPTION OF ALCOHOLIC BEVERAGES. ALCOHOLIC BEVERAGES ARE CARCINOGENIC TO HUMANS." THERE IS NO EVIDENCE THAT OCCUPATIONAL EXPOSURE CAN CAUSE SUCH EFFECTS.

BASED ON THESE FINDINGS, THE INTERNATIONAL AGENCY FOR RESEARCH FOR CANCER (IARC) HAS NOT CLASSIFIED ETHANOL AS A CARCINOGEN.

Notice to reader

THIS MATERIAL SAFETY DATA SHEET IS INTENDED TO MEET THE SPECIFIC REQUIREMENTS OF 29 CFR 1910.1200 AND SHOULD BE USED ACCORDINGLY. WHILE THE INFORMATION HAS BEEN OBTAINED FROM SOURCES BELIEVED TO BE ACCURATE AND RELIABLE, NO WARRANTY, EXPRESSED OR IMPLIED, CAN BE MADE WITH REGARD TO ITS COMPLETENESS, CORRECTNESS OR ACCURACY. ANY USERS OR HANDLERS OF THIS PRODUCT WHO ARE NOT UNDER THE DIRECT CONTROL OF GIVAUDAN ARE RESPONSIBLE FOR EVALUATING THIS INFORMATION IN LIGHT OF THEIR PARTICULAR SITUATION AND ARE RESPONSIBLE FOR ALL LOSSES, DAMAGES OR EXPENSES THAT RESULT WHILE THIS MATERIAL IS UNDER THEIR CONTROL. IT IS ALSO THE RESPONSIBILITY OF THE USERS AND HANDLERS TO OBSERVE ANY AND ALL LAWS AND REGULATIONS (FEDERAL, STATE AND LOCAL) CONCERNING THE TRANSPORTATION, USE, HANDLING, STORAGE AND DISPOSAL OF THIS PRODUCT.