

TOXIC CHEMICALS EMITTED BY AIR FRESHENERS

Principal Investigator: Professor Anne C. Steinemann, Department of Civil and Environmental Engineering and Public Affairs, University of Washington.
Health effects obtained from the National Library of Medicine's Toxicology Data Network (TOXNET®). Note that fragranced consumer products are not required to disclose all chemicals, not even ones classified as toxic or hazardous under federal laws. None of these chemicals were listed on the product label or material safety data sheet.

FORMALDEHYDE (50-00-0)

“May cause convulsions, gastrointestinal disturbances, coughing, chest pains, difficulty in breathing.” “Toxic if absorbed through skin. Readily absorbed through skin.” “May cause allergic skin reaction” “Eye contact: causes burns.” “Toxic if inhaled.” “is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.” “Toxic if swallowed.” “spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, nausea, and vomiting.”

Recognized Carcinogen

Gastrointestinal or Liver Toxicant, Immunotoxicant, Neurotoxicant, Reproductive Toxicant, Respiratory Toxicant, Skin or Sense Organ Toxicant

Regulated as toxic/hazardous chemical under the following law(s):

Air Contaminants (OSHA), Extremely Hazardous Substances (CERCLA), Hazardous Air Pollutants (CAA), Hazardous Constituents (RCRA), Hazardous Substances (CERCLA), Regulated Toxic, Explosive, or Flammable Substances (CAA), Registered Pesticides (FIFRA), Toxic Release Inventory Chemicals (EPCRA), Air Contaminants (CA OSHA), Toxic Air Contaminant (CA TAC)

ACETALDEHYDE (75-07-0)

“Inhalation is associated with irritation of the eyes, skin, and respiratory tract” “Irritates nose and mucous membranes of the upper respiratory system.” “considered a potential developmental toxin and a probable human carcinogen.” “May cause cancer based on animal studies. May cause lung damage. May cause central nervous system (CNS) depression. May cause liver and kidney damage. Marine pollutant.”

Recognized Carcinogen

Developmental Toxicant, Immunotoxicant, Kidney Toxicant, Neurotoxicant, Respiratory Toxicant, Skin or Sense Organ Toxicant

Regulated as toxic/hazardous chemical under the following law(s):

Air Contaminants (OSHA), Hazardous Air Pollutants (CAA), Hazardous Substances (CERCLA), Regulated Toxic, Explosive, or Flammable Substances (CAA), Toxic

Release Inventory Chemicals (EPCRA), Air Contaminants (CA OSHA), Toxic Air Contaminant (CA TAC)

ACETONE (67-64-1)

“Inhalation: dizziness, breathing difficulties, headaches, loss of coordination, anesthesia and respiratory tract irritation.” “Eyes: irritation, redness, tearing and blurred vision” “slurred speech, drowsiness, and, in severe exposures, coma.” “Acetone vapor can cause central nervous system (CNS) depression.”

Cardiovascular or Blood Toxicant, Gastrointestinal or Liver Toxicant, Kidney Toxicant, Neurotoxicant, Respiratory Toxicant, Skin or Sense Organ Toxicant

Governing legislation:

Air Contaminants (OSHA), Hazardous Substances (CERCLA), Registered Pesticides (FIFRA), Air Contaminants (CA OSHA)

3-CARENE (13466-78-9)

(“BICYCLO(4.1.0)HEPT-3-ENE, 3,7,7-TRIMETHYL-“)

“May cause eye irritation.” “Causes skin irritation. May be harmful if absorbed through the skin. May cause sensitization by skin contact.” “May cause irritation of the digestive tract. May be harmful if swallowed.” “May cause respiratory tract irritation. May be harmful if inhaled.”

CITRONELLA (3,7-DIMETHYL-6-OCTENAL) (106-23-0)

“Causes skin irritation. May be harmful if absorbed through the skin.” “Causes eye irritation.” “May be harmful if inhaled.” “irritating to the mucous membranes and upper respiratory tract.”

DECANAL (112-31-2)

“Harmful by ingestion, inhalation or skin absorption.” “Severe irritant.” “Eyes: may cause severe burns and loss of vision. May cause permanent damage.” “Skin: contact with liquid can cause severe irritation or burns. Readily absorbed through skin.” “extremely irritating or destructive to tissue of the mucous membranes and upper respiratory tract. Symptoms of exposure may include burning sensation, coughing, laryngitis, dyspnea, headache, nausea, and vomiting.”

2,4-DIMETHYL-3-CYCLOHEXENE-1-CARBOXALDEHYDE (68039-49-6)

“Irritating to the eyes.” “Irritating to the skin.” “Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.” “may cause irritation of the throat and nose, headache, nausea and drowsiness.”

ETHANOL (64-17-5)

“May cause irritation of eyes, and mucous membranes.” “May cause central nervous system depression” “Preexisting eye, skin, and respiratory disorders may be aggravated by exposure to this product.”

Suspected Carcinogen, Cardiovascular or Blood Toxicant, Developmental Toxicant, Endocrine Toxicant, Gastrointestinal or Liver Toxicant, Kidney Toxicant, Neurotoxicant, Reproductive Toxicant, Respiratory Toxicant, Skin or Sense Organ Toxicant

Regulated as toxic/hazardous chemical under the following law(s):

Air Contaminants (OSHA), Registered Pesticides (FIFRA), Air Contaminants (CA OSHA)

ETHYL ACETATE (141-78-6)

“can cause drying of skin.” “Irritating to the eyes.” “irritating to nasal passage and throat.” “can cause stupor and headaches” “can cause headache, drowsiness and unconsciousness.”

Neurotoxicant, Respiratory Toxicant, Skin or Sense Organ Toxicant

Governing legislation:

Air Contaminants (OSHA), Hazardous Substances (CERCLA), Registered Pesticides (FIFRA), Air Contaminants (CA OSHA)

3-HEXEN-1-OL ((Z)-3-hexenol) (928-96-1)

“May be harmful if absorbed through the skin” “harmful if inhaled” “irritating to mucous membranes and upper respiratory tract.”

d-LIMONENE (138-86-3)

“Extremely hazardous in case of eye contact. Very hazardous in case of skin contact.” “may lead to chronic respiratory irritation.” “Prevent its contact with skin or eyes.” “Always wash thoroughly after using this material and before eating, drinking, ...applying cosmetics. Do not inhale limonene vapor.” “symptoms include...burning pain in the mouth and throat, abdominal pain, nausea, vomiting, diarrhea, transient excitement, ataxia, delirium, stupor, coughing, choking, dyspnea, cyanosis, fever and tachycardia. In addition, pulmonary edema and pneumonitis may occur with limonene aspiration or systemic absorption. Dizziness and suffocation may be observed following limonene inhalation.”

LIMONENE OXIDE (1195-92-2)

“May cause skin irritation...eye irritation...be harmful by inhalation, ingestion, or skin absorption.”

LINALOOL (“1,6-OCTADIEN-3-OL, 3,7-DIMETHYL-“) (78-70-6)

“Causes central nervous system disorders.” “Contact with the eyes may result in irritation.” “Inhalation may result in respiratory irritation.” “irritating to mucous membranes and upper respiratory tract.” “Causes skin irritation.” Irritant. Mutagenic effects.

NONANAL (“1-NONALDEHYDE”) (124-19-6)

“Irritating to eyes, respiratory system and skin.” “Harmful to aquatic organisms. May cause long term adverse effects on the environment.”

α -PINENE (“2,6,6-TRIMETHYLBICYCLO(3.1.1)-2-HEPT-2-ENE”) (80-56-8)
“Irritates skin, mucous membranes.” “Causes skin eruption, GI irritation, delirium, ataxia, kidney damage, coma.” “Inhalation causes palpitation, dizziness, nervous disturbances, chest pain, bronchitis, nephritis.” “Benign skin tumors” “Damaging to the immune system.”

Neurotoxicant, Respiratory Toxicant, Skin or Sense Organ Toxicant

Governing legislation:
Registered Pesticides (FIFRA)

β -PINENE (“2(10)-PINENE”) (127-91-3)
“Skin, eye and respiratory irritant.” “very destructive of mucous membranes.” “Vapors may cause dizziness or suffocation.” “Severe irritation.” “Shortness of breath, headache, nausea, and vomiting.”

cis-ROSE OXIDE (16409-43-1)
 (“4-METHYL-2-(2-METHYL-1-PROPENYL)-TETRAHYDROPYRAN”)

“May be irritating to the skin and eyes.” “may cause irritation of the throat and nose, headache, nausea and drowsiness.”

GAMMA-TERPINENE (99-85-4)
“Causes skin irritation. May be harmful if absorbed through the skin.” “Causes eye irritation.” “May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.” “May be harmful if swallowed.” “Causes asthma and CNS disorders”

α -TERPINOLENE (“1,4(8)-P-MENTHADIENE”) (586-62-9)
“Causes skin irritation. May be harmful if absorbed through the skin.” “Causes eye irritation.” “May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.” “May be harmful if swallowed.”