Safety Data Sheet

According to 29 CFR 1910.1200 (OSHA Hazard Communication Standard, 2024)

Version 2 · Date of preparation 2026-10-07

Section 1. Identification

Product identifier used on the label	EDC.HCl (product number 31012)
Other means of identification	Product number: 31012 Abbreviations: EDC·HCl, EDCI, EDAC hydrochloride Molecular formula: C8H17N3·HCl (molecular weight 191.70)
Recommended use of the chemical and restrictions on use	Recommended use: laboratory chemical; water-soluble carbodiimide coupling reagent for amide bond formation and conjugation, for research and for the manufacture of substances. Restrictions on use: not for use in food, drugs, pesticides or biocidal products.
Name, U.S. address, and U.S. telephone number of the chemical manufacturer, importer, or other responsible party	P3 BioSystems 270 Haven Hill Rd, Shelbyville, KY 40065 Telephone: +1 888-737-5598 Email: info@p3bio.com
Emergency phone number	+1 888-737-5598 (P3 BioSystems office line, business hours)

Section 2. Hazard identification

Classification of the chemical in accordance with paragraph (d)(1) of § 1910.1200, except for classification under paragraph (d)(1)(ii)	• Acute toxicity - oral, category 4 • Acute toxicity - dermal, category 3 • Skin corrosion/irritation, category 2 • Eye damage/irritation, category 1 • Sensitization - skin, category 1 (including both sub-categories 1A and 1B) • Specific target organ toxicity (single exposure), category 3 • Specific target organ toxicity (repeated exposure), category 2

Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of § 1910.1200	**Signal word: Danger** Hazard pictograms: Exclamation Mark, Skull and Crossbones, Corrosion, Health Hazard Hazard statements: • H302 Harmful if swallowed. • H311 Toxic in contact with skin. • H315 Causes skin irritation. • H318 Causes serious eye damage. • H317 May cause an allergic skin reaction. • H335 May cause respiratory irritation. • H373 May cause damage to organs (stomach, large intestine, lymph node) through prolonged or repeated exposure if swallowed. Precautionary statements: • P260 Do not breathe dust. • P264 Wash hands thoroughly after handling. • P270 Do not eat, drink or smoke when using this product. • P271 Use only outdoors or in a well-ventilated area. • P272 Contaminated work clothing must not be allowed out of the workplace. • P280 Wear protective gloves/protective clothing/eye protection/face protection. • P301+P312 If swallowed: Call a poison center or doctor if you feel unwell. • P330 Rinse mouth. • P302+P352 If on skin: Wash with plenty of soap and water. • P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing. • P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. • P310 Immediately call a poison center or doctor. • P312 Call a poison center or doctor if you feel unwell. • P314 Get medical advice/attention if you feel unwell. • P321 Specific treatment (see Section 4 of this SDS). • P333+P313 If skin irritation or rash occurs: Get medical advice/attention. • P361+P364 Take off immediately all contaminated clothing and wash it before reuse. • P405 Store locked up. • P501 Dispose of contents/container in accordance with local, state and federal regulations.
Hazards classified under paragraph (d)(1)(ii) of § 1910.1200	None identified.
Hazards not otherwise classified that have been identified during the classification process	None identified.

Where an ingredient with unknown acute toxicity is used in a mixture at a concentration ≥ 1% and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity	Not applicable: the product is a substance, not a mixture.

Section 3. Composition/information on ingredients

Chemical name	3-(ethyliminomethylideneamino)-N,N-dimethylpropan-1-amine;hydrochloride
Common name and synonyms	EDC hydrochloride EDCI EDAC hydrochloride 1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride N-(3-Dimethylaminopropyl)-N′-ethylcarbodiimide hydrochloride 3-(3-Dimethylaminopropyl)-1-ethylcarbodiimide hydrochloride 1,3-Propanediamine, N′-(ethylcarbonimidoyl)-N,N-dimethyl-, monohydrochloride
CAS number and other unique identifiers	• CAS number: 25952-53-8 • InChIKey: FPQQSJJWHUJYPU-UHFFFAOYSA-N • PubChem CID: 2723939
Impurities and stabilizing additives (constituents) which are themselves classified and which contribute to the classification of the substance	None known. Purity is at least 98.5% (HPLC), per specification; no impurity or additive is known to contribute to the classification.

Section 4. First-aid measures

Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion	General advice: First aiders must protect themselves. Show this safety data sheet to the doctor in attendance. Inhalation: Remove the person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration; do not use the mouth-to-mouth method, use a pocket mask with a one-way valve or other proper respiratory device. Call a poison center or doctor if you feel unwell. Skin contact: Take off immediately all contaminated clothing. Wash the skin with plenty of soap and water for at least 15 minutes. Get medical attention immediately. Wash contaminated clothing before reuse. Eye contact: Rinse cautiously with plenty of water for at least 15 minutes, also under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor; the eye should be examined by an ophthalmologist. Ingestion: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a poison center or doctor if you feel unwell.
Most important symptoms/effects, acute and delayed	Acute: toxic in contact with skin; harmful if swallowed; skin irritation, which may be severe; serious eye damage, with a risk of lasting injury to the eye; irritation of the nose, throat and airways from dust (coughing, shortness of breath). Delayed: allergic skin reaction. Symptoms of an allergic reaction may include rash, itching and swelling and, in more severe reactions, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing. Prolonged or repeated exposure by swallowing may damage the stomach, large intestine and lymph nodes.
Indication of immediate medical attention and special treatment needed, if necessary	Immediate medical attention is required after eye contact and after skin contact. Treat symptomatically. A person who has developed an allergic skin reaction should avoid any further contact with the product.

Section 5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media	Suitable extinguishing media: water spray, carbon dioxide (CO_2), dry chemical, alcohol-resistant foam. Unsuitable extinguishing media: none known.
Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products)	Combustible solid; not classified as flammable. Hazardous gases and vapors can form in a fire. Hazardous combustion products: carbon monoxide, carbon dioxide, nitrogen oxides (NO_x) and hydrogen chloride gas.
Special protective equipment and precautions for fire-fighters	Wear a self-contained breathing apparatus (pressure-demand, NIOSH-approved or equivalent) and full protective gear; prevent skin contact. Knock down gases and vapors with a water spray. Do not allow fire-fighting water to enter drains, surface water or groundwater.

Section 6. Accidental release measures

Personal precautions, protective equipment, and emergency procedures	Evacuate unprotected people from the area and keep people upwind of the spill. Wear the personal protective equipment described in Section 8, including gloves, protective clothing, eye/face protection and, where dust is generated, respiratory protection. Do not breathe dust; avoid generating dust. Avoid all contact with skin, eyes and clothing. Ensure adequate ventilation.
Methods and materials for containment and cleaning up	Cover drains and prevent the product from entering drains, surface water or groundwater. Without creating dust, carefully sweep up and shovel the material into a suitable, closed, labelled container for disposal. Clean the affected area. Local authorities should be advised if a significant spillage cannot be contained. Dispose of as described in Section 13.

Section 7. Handling and storage

Precautions for safe handling	Use only in a chemical fume hood. Do not breathe dust; avoid dust formation. Do not get in eyes, on skin or on clothing. Wear protective gloves, protective clothing and eye/face protection (Section 8). Take off immediately all contaminated clothing and wash it before reuse; contaminated work clothing must not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Wash hands and face thoroughly after handling. Handle under inert gas and protect from moisture. Avoid release to the environment.
Conditions for safe storage, including any incompatibilities	Store refrigerated (2–8 °C) in a tightly closed container in a dry, well-ventilated place (per specification). Moisture-sensitive: protect from moisture and store under an inert atmosphere. Store locked up, or in an area accessible only to qualified or authorized persons. Incompatible materials: acids, oxidizing agents, acid anhydrides, acid halides; nitrites, nitrates and nitrous acid.

Section 8. Exposure controls/personal protection

OSHA permissible exposure limit (PEL), ACGIH Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available	No OSHA PEL or ACGIH TLV has been established.
Appropriate engineering controls	Use only in a chemical fume hood or with local exhaust ventilation that keeps airborne dust as low as possible. Eyewash stations and safety showers must be close to the workstation.

Individual protection measures, such as personal protective equipment	Eye/face protection: tightly fitting chemical safety goggles meeting OSHA's eye and face protection regulations (29 CFR 1910.133), with a face shield where dust or splashes are possible. Skin protection: nitrile rubber gloves (minimum thickness 0.11 mm; reported breakthrough time 480 min), inspected before use and removed without touching the outer surface; dispose of contaminated gloves after use. Wear protective clothing (laboratory coat, and additional impervious clothing for larger quantities) to prevent any skin contact. Respiratory protection: required when dust is generated outside a fume hood, or if irritation or other symptoms are experienced: use a NIOSH-approved particulate respirator under a respiratory protection program meeting 29 CFR 1910.134. Hygiene: immediately change contaminated clothing. Wash hands and face before breaks and after work. Do not eat, drink or smoke in the work area.

Section 9. Physical and chemical properties

Physical state	Solid (powder), per specification.
Color	White to off-white, per specification.
Odor (includes odor threshold)	Odor: odorless. Odor threshold: no information available.
Melting point/freezing point	Melting point: 110.0–115.0 °C, per specification.
Boiling point (or initial boiling point or boiling range)	Not applicable: decomposes before boiling (OECD 103).
Flammability	No test data available. Not classified as a flammable solid; combustible.
Lower and upper explosion limit/flammability limit	No data available.
Flash point	No information available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
pH	pH 7.9 (aqueous solution, measured with the water-solubility test; concentration not stated).
Kinematic viscosity	Not applicable (solid).
Solubility	Water: very soluble; 1,000 g/L at 20 °C (OECD 105).
Partition coefficient n-octanol/water (log value)	log Pow −2.98 at 20 °C (pH 5.76–6.32; OECD 107).
Vapor pressure (includes evaporation rate)	Vapor pressure: < 1.3 hPa (< 1 mmHg) at 20 °C (OECD 104). Evaporation rate: not applicable (solid).
Density and/or relative density	Density: 1.044 g/cm³ at 20 °C (OECD 109).
Relative vapor density	Not applicable (solid).

Particle characteristics	No data available.

Section 10. Stability and reactivity

Reactivity	Moisture-sensitive. No other hazardous reactivity known under normal conditions.
Chemical stability	Stable under normal conditions and the recommended storage conditions. Moisture-sensitive.
Possibility of hazardous reactions, including those associated with foreseeable emergencies	In contact with nitrites, nitrates or nitrous acid, nitrosamines may be liberated. Violent reactions are possible with oxidizing agents, acid anhydrides, acid halides and acids. Hazardous polymerization does not occur.
Conditions to avoid (e.g., static discharge, shock, or vibration)	Exposure to moist air or water; excess heat, sparks and flame; dust formation; contact with incompatible materials.
Incompatible materials	Acids, oxidizing agents, acid anhydrides, acid halides, nitrites, nitrates and nitrous acid.
Hazardous decomposition products	Thermal decomposition can release carbon monoxide, carbon dioxide, nitrogen oxides (NOx) and hydrogen chloride gas.

Section 11. Toxicological information

Information on the likely routes of exposure (inhalation, ingestion, skin, and eye contact)	Skin contact (toxic by this route), eye contact, ingestion and inhalation of dust.
Symptoms related to the physical, chemical, and toxicological characteristics	Skin: redness, pain and irritation, which may be severe; in sensitized persons, allergic dermatitis (rash, itching, swelling). Toxic if absorbed through the skin. Eyes: pain, redness, watering and serious eye damage; risk of lasting injury. Inhalation: irritation of the nose, throat and airways (coughing, shortness of breath). Ingestion: harmful if swallowed.
Delayed and immediate effects and also chronic effects from short- and long-term exposure	Immediate effects: toxic in contact with skin; harmful if swallowed; skin irritation (severe irritation in a rabbit test, OECD 404); serious eye damage; respiratory tract irritation from dust. Delayed effects: allergic skin reaction (positive mouse local lymph node assay, OECD 429). Once sensitized, a person may react to very small amounts. Chronic effects: may cause damage to the stomach, large intestine and lymph nodes through prolonged or repeated exposure if swallowed (repeated-dose oral study, rat). Genetic toxicity: positive in the bacterial reverse mutation (Ames) test (OECD 471) and in an in vitro test in mouse lymphoma cells (OECD 476); negative in an in vivo genotoxicity test in the rat (OECD 489). Not classified for germ cell mutagenicity.

Numerical measures of toxicity (such as acute toxicity estimates)	LD50, oral, rat (female): 500 mg/kg (OECD 423). LD50, dermal, rat (male and female): > 200 – 1,000 mg/kg (OECD 402). LD50, intravenous, mouse: 56 mg/kg. LC50, inhalation: no data available.
Interactive effects; information on interactions should be included if relevant and readily available	No information available.
Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA	Not listed as a carcinogen or potential carcinogen by NTP (Report on Carcinogens), IARC or OSHA.
When specific chemical data or information is not available, whether alternative information is used and the method used to derive the information (e.g., information from a class of chemicals rather than the exact chemical, using SAR)	No information from analogous substances or chemical classes was used. The data above are for EDC hydrochloride itself.

Section 12. Ecological information

Ecotoxicity (aquatic and terrestrial, where available)	Toxic to aquatic life. Fish (Cyprinus carpio, carp): LC50 4.6 mg/L, 96 h (OECD 203). Aquatic invertebrates (Daphnia magna): EC50 0.41 mg/L, 48 h (ISO 6341). Microorganisms (activated sludge): EC50 > 347 – < 470 mg/L, 3 h (OECD 209).
Persistence and degradability	Not readily biodegradable: < 5% in 28 days (OECD 301F).
Bioaccumulative potential	Bioaccumulation is not expected (log Pow −2.98).
Mobility in soil	Likely to be mobile in the environment because of its high water solubility.
Other adverse effects (such as hazardous to the ozone layer)	Contains no Class I or Class II ozone-depleting substances (Clean Air Act Section 602). No other adverse effects known.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging	Dispose of contents and container as hazardous chemical waste through a licensed waste disposal company, in accordance with local, state and federal regulations. Waste generators must determine whether the discarded material is a hazardous waste under US EPA rules (40 CFR Part 261) and any state rules. Contaminated packaging: dispose of as unused product. Do not dispose of in drains or with household waste. Avoid release to the environment; do not mix with other waste.

Section 14. Transport information

US DOT: regulated; see 14.a–14.e.

IMDG: not offered — P3 does not ship by sea.

IATA: regulated; see 14.a–14.e.

UN number	• US DOT: UN2811 • IATA: UN2811
UN proper shipping name	• US DOT: Toxic solid, organic, n.o.s. (1-(3-dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride) • IATA: Toxic solid, organic, n.o.s. (1-(3-dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride)
Transport hazard class(es)	• US DOT: 6.1 • IATA: 6.1
Packing group, if applicable	• US DOT: III • IATA: III
Environmental hazards (e.g., Marine pollutant (Yes/No))	• US DOT: not a marine pollutant • IATA: not a marine pollutant
Transport in bulk (according to IMO instruments)	Not applicable. The product is shipped only in non-bulk packages and is not shipped by sea.
Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises	Toxic solid: keep packages closed and upright, and separate from foodstuffs. If a package is damaged, avoid skin contact and dust, and prevent the contents from entering drains or waterways.

Section 15. Regulatory information

Safety, health and environmental regulations specific for the product in question	TSCA: The chemicals shipped by P3 BioSystems are not subject to TSCA. SARA Title III, Sections 302 and 313: not listed. SARA 311/312 hazard categories: see Section 2. CERCLA: not a listed hazardous substance (no reportable quantity). Clean Water Act and Clean Air Act: not regulated. California Proposition 65: this product does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Section 16. Other information, including date of preparation or last revision

The date of preparation of the SDS or the last change to it	Date of preparation: 2026-10-07.

The information above is believed to be accurate and represents the best information available to P3 BioSystems on the date of preparation. It is provided for the safe handling of the product by trained persons in a laboratory and is not a warranty of any kind.