

Safety Data Sheet
PRO-SET® HTP-284 Hardener

Revision Date:
8 December, 2025

SECTION 1. IDENTIFICATION

Product identifier

Product Identity PRO-SET® HTP-284 Hardener
Other means of identification Not Applicable

Relevant identified uses of the substance or mixture and uses advised against

See Technical Data Sheet.

Details of the supplier of the safety data sheet

Company Name PRO-SET
Gougeon Brothers, Inc.
100 Patterson Ave.
Bay City, MI 48706, U.S.A.

Emergency
24 hour Emergency Telephone No. Transportation
CHEMTREC: 800-424-9300 (U.S.)
703-527-3887 (International)
Non-transportation
Poison Hotline: 800-222-1222

Customer Service: 866-937-8797
www.prosetepoxy.com

SECTION 2. HAZARD(S) IDENTIFICATION

Classification of the substance or mixture under OSHA's Hazard Communication Standard (1910.1200) revised 2024 (GHS revision 7)

Acute toxicity(oral), category 4;H302	Harmful if swallowed.
Acute toxicity(dermal), category 4;H312	Harmful in contact with skin.
Skin corrosion/irritation category 1;H314	Causes severe skin burns and eye damage.
Serious eye damage / eye irritation, category 1;H318	Causes serious eye damage.
Skin sensitizer category 1;H317	May cause an allergic skin reaction.

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Carcinogen, category 1B;H350
Reproductive toxicity, category 1B;H360Fd

May cause cancer.
May damage fertility. Suspected of damaging the unborn child.

Aquatic toxicity (acute), category 3;H402
Aquatic toxicity (chronic), category 3;H412

Harmful to aquatic life.
Harmful to aquatic life with long lasting effects.

Label elements



Danger

H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H350 May cause cancer.
H360Fd May damage fertility. Suspected of damaging the unborn child.
H412 Harmful to aquatic life with long lasting effects.

[Prevention]

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust, fume, mist, vapors or spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.

[Response]

P301+312 IF SWALLOWED: Call a POISON CENTER, doctor or physician if you feel unwell.
P302+352 IF ON SKIN: Wash with plenty of soap and water.

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P303+361+353 IF ON SKIN (or hair): Remove, take off immediately all contaminated clothing. Rinse skin with water or shower.

P304+340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+313 IF exposed or concerned: Get medical advice or attention.

P310 Immediately call a POISON CENTER, doctor or physician.

P312 Call a POISON CENTER, doctor or physician if you feel unwell.

P301+330+331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P333+313 If skin irritation or a rash occurs: Get medical advice or attention.

P362+364 Take off contaminated clothing and wash it before reuse.

P363 Wash contaminated clothing before reuse.

[Storage]

P405 Store locked up.

[Disposal]

P501 Dispose of contents or container in accordance with local and national regulations.

Other hazards

This product contains no PBT/vPvB/vPvM chemicals.

This product contains no endocrine disrupting chemicals.

Does NOT contain component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS) per the US EPA PFASMASTER combined list of PFAS chemicals.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

This product contains the following substances that present a hazard within the meaning of the OSHA's Hazard Communication Standard (1910.1200) revised 2024 (GHS revision 7).

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Epoxy-deta adduct CAS Number: 31326-29-1 Synonyms: No available information	30 - 60		No data available
1,3-bis(aminomethyl)cyclohexane CAS Number: 2579-20-6 Synonyms: 1,3-Cyclohexanedimethanamine	30 - 60	Acute toxicity(oral), category 4;H302 Acute toxicity(dermal), category 4;H312 Skin corrosion/irritation category 1A;H314 Serious eye damage / eye irritation, category 1;H318	No data available
4,4'-Diaminodicyclohexylmethane CAS Number: 1761-71-3	10 - 30	Acute toxicity(oral), category 4;H302	No data available

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Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Synonyms: 4,4'-methylenebis(cyclohexylamine), 4,4'-디아미노디시클로헥실메탄, Cyclohexanamine, 4,4'-methylenebis-		Skin sensitizer category 1;H317 Skin corrosion/irritation category 1B;H314	
2,2'-iminodi(ethylamine) CAS Number: 111-40-0 Synonyms: bis(2-aminoethyl)amine, DETA, Diethylene triamine, Diethylenetriamine, Diethylenetriamine (DETA), dietilenetriamina	7 - 13	Acute toxicity(dermal), category 4;H312 Acute toxicity(oral), category 4;H302 Skin corrosion/irritation category 1B;H314 Skin sensitizer category 1;H317	No data available
1h-imidazole, 2-ethyl-4-methyl- CAS Number: 931-36-2 Synonyms: 2-ethyl-4-methylimidazole	3 - 7	Acute toxicity(oral), category 4;H302 Serious eye damage / eye irritation, category 1;H318 Aquatic toxicity (acute), category 2;H401 Aquatic toxicity (chronic), category 2;H411 Carcinogen, category 2;H351	No data available
4-methylimidazole CAS Number: 822-36-6 Synonyms: No available information	0.1 - 1	Carcinogen, category 1B;H350 Reproductive toxicity, category 1B;H360Fd	No data available

The actual concentration or concentration range is withheld as a trade secret.

*PBT/vPvB - PBT, vPvM or vPvB-substance.

The full texts of the phrases are shown in Section 16.

SECTION 4. FIRST AID MEASURES

Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention.

Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed

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Overview No specific symptom data available.

Possible cancer hazard. Contains an ingredient which may cause cancer based on animal data (See Section 3 and Section 15 for each ingredient). Risk of cancer depends on duration and level of exposure.

Reproductive or genetic defect hazard.

Treat symptomatically. See section 2 for further details.

Eyes Causes serious eye damage.

Skin Harmful in contact with skin. May cause an allergic skin reaction. Causes severe skin burns and eye damage.

Ingestion Harmful if swallowed.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Recommended extinguishing media; alcohol resistant foam, CO₂, powder, water spray.

Unsuitable extinguishing media: Do not use; water jet.

Special hazards arising from the substance or mixture

Hazardous decomposition: No hazardous decomposition data available.

Do not breathe dust, fume, mist, vapors or spray.

Advice for fire-fighters

As with all fires, wear positive pressure, self-contained breathing apparatus, (SCBA) with a full face piece and protective clothing. Persons without respiratory protection should leave area. Wear SCBA during clean-up immediately after fire. No smoking.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

Environmental precautions

Do not allow spills to enter drains or waterways.

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Methods and material for containment and cleaning up

Ventilate the area and avoid breathing vapors. Take the personal protective measures listed in section 8. Contain and absorb spillage with non-combustible materials e.g. sand, earth, and vermiculite. Place in closed containers outside buildings and dispose of according to the Waste Regulations.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

Handle containers carefully to prevent damage and spillage.
See section 2 for further details. - [Prevention]

Conditions for safe storage, including any incompatibilities

Incompatible materials: Any acidic material, ammonia, urea, oxidizable materials and metals such as nickel, copper, tin, aluminum and iron.
See section 2 for further details. - [Storage]

Specific end use(s)

No available information

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure Limits

CAS No.	Ingredient	Source	Value
111-40-0	2,2'-iminodi(ethylamine)	OSHA	No Established Limit
		ACGIH	1 ppm
		NIOSH	TWA 1 ppm (4 mg/m ³) [skin]
822-36-6	4-methylimidazole	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
931-36-2	1h-imidazole, 2-ethyl-4-methyl-	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
1761-71-3	4,4'-Diaminodicyclohexylmethane	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
2579-20-6	1,3-bis(aminomethyl)cyclohexane	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
31326-29-1	Epoxy-deta adduct	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit

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Exposure controls

- Respiratory** Use NIOSH/MSHA approved respirator, following manufacturer's recommendations when concentrations exceed permissible exposure limits.
- Eyes** Wear safety glasses with side shields to protect the eyes. An eye wash station is suggested as a good workplace practice.
- Skin** Chemical resistant clothing such as coveralls/apron and boots should be worn. Chemical impervious gloves required.
- Engineering Controls** Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.
- Other Work Practices** Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Color	Amber
Odor	類似胺氣味道
Odor threshold	No available information
Melting point / freezing point	No available information
Initial boiling point and boiling range	> 400°F (204°C)
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: No available information Upper Explosive Limit: No available information
Flash Point	Estimated > 200°F (93°C)
Auto-ignition temperature	No available information
Decomposition temperature	No available information
pH	11.86
Viscosity (cSt)	No available information
Solubility in Water	No available information
Partition coefficient n-octanol/water (Log Kow)	No available information
Vapor pressure (Pa)	No available information
Relative Density	1.003
Vapor Density	No available information

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Evaporation rate (Ether = 1)	No available information
VOC Content	HTP-182 / HTP-284- 2.06 (g/L)
Oxidising properties	No available information
Explosive properties	No available information
Kinematic Viscosity	239.3 mm ² /s @ 20°C
Bulk Density	8.37 lbs./gal. (1.003 kg/L)

Other information
No other relevant information.

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Hazardous Polymerization will not occur.

Chemical stability

Stable under normal circumstances.

Possibility of hazardous reactions

No available information

Conditions to avoid

Avoid high temperatures and contact with incompatible material

Incompatible materials

Any acidic material, ammonia, urea, oxidizable materials and metals such as nickel, copper, tin, aluminum and iron.

Hazardous decomposition products

No hazardous decomposition data available.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Epoxy-deta adduct - (31326-29-1)	No data available.	No data available.	No data available.	No data available.	No data available.

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Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
1,3-bis(aminomethyl)cyclohexane - (2579-20-6)	880.00, Rat - Category: 4	No data available.	No data available.	No data available.	No data available.
4,4'-Diaminodicyclohexylmethane - (1761-71-3)	1,000.00, Rat - Category: 4	2,110.00, Rabbit - Category: 5	No data available.	No data available.	No data available.
2,2'-iminodi(ethylamine) - (111-40-0)	1,080.00, Rat - Category: 4	1,090.00, Rabbit - Category: 4	No data available.	No data available.	No data available.
1h-imidazole, 2-ethyl-4-methyl- - (931-36-2)	731.00, Rat - Category: 4	No data available.	No data available.	No data available.	No data available.
4-methylimidazole - (822-36-6)	751.00, Rat - Category: 4	440.00, Rabbit - Category: 3	No data available.	No data available.	No data available.

Carcinogen Data

CAS No.	Ingredient	Source	Value
111-40-0	2,2'-iminodi(ethylamine)	OSHA	Regulated Carcinogen: No;
		NTP	Known: No; Suspected: No;
		IARC	No
		ACGIH	No Established Limit
822-36-6	4-methylimidazole	OSHA	Regulated Carcinogen: No;
		NTP	Known: No; Suspected: No;
		IARC	Group 2b
		ACGIH	No Established Limit
931-36-2	1h-imidazole, 2-ethyl-4-methyl-	OSHA	Regulated Carcinogen: No;
		NTP	Known: No; Suspected: No;
		IARC	No
		ACGIH	No Established Limit
1761-71-3	4,4'-Diaminodicyclohexylmethane	OSHA	Regulated Carcinogen: No;
		NTP	Known: No; Suspected: No;
		IARC	No
		ACGIH	No Established Limit
2579-20-6	1,3-bis(aminomethyl)cyclohexane	OSHA	Regulated Carcinogen: No;
		NTP	Known: No; Suspected: No;
		IARC	No
		ACGIH	No Established Limit
31326-29-1	Epoxy-deta adduct	OSHA	Regulated Carcinogen: No;
		NTP	Known: No; Suspected: No;
		IARC	No
		ACGIH	No Established Limit

Classification	Category	Hazard Description
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Acute toxicity (oral)	4	Harmful if swallowed.
Acute toxicity (dermal)	4	Harmful in contact with skin.
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	1	Causes severe skin burns and eye damage.
Serious eye damage/irritation	1	Causes serious eye damage.
Respiratory sensitization	---	Not Applicable
Skin sensitization	1	May cause an allergic skin reaction.
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	1B	May cause cancer.
Reproductive toxicity	1B	May damage fertility. Suspected of damaging the unborn child.
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

Possible routes of entry:

Inhalation, ingestion, skin contact, and skin absorption.

Symptoms and effects, both acute and delayed:

No specific symptom data available.

Possible cancer hazard. Contains an ingredient which may cause cancer based on animal data (See Section 3 and Section 15 for each ingredient). Risk of cancer depends on duration and level of exposure.

Reproductive or genetic defect hazard.

Treat symptomatically.

Eyes Causes serious eye damage.

Skin Harmful in contact with skin. May cause an allergic skin reaction. Causes severe skin burns and eye damage.

Ingestion Harmful if swallowed.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Harmful to aquatic life with long lasting effects.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/L	48 hr EC50 crustacea, mg/L	ErC50 algae, mg/L
Epoxy-deta adduct - (31326-29-1)	No data available.	No data available.	No data available.
1,3-bis(aminomethyl)cyclohexane - (2579-20-6)	130.00, Leuciscus idus	33.10, Daphnia magna	56.70, Algae
4,4'-Diaminodicyclohexylmethane - (1761-71-3)	46.00, Leuciscus idus	6.84, Daphnia magna	140.00, Algae

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Ingredient	96 hr LC50 fish, mg/L	48 hr EC50 crustacea, mg/L	ErC50 algae, mg/L
2,2'-iminodi(ethylamine) - (111-40-0)	1,014.00, Poecilia reticulata	53.50, Daphnia magna	345.60, Pseudokirchneriella subcapitata
1h-imidazole, 2-ethyl-4-methyl- - (931-36-2)	46.00, Leuciscus idus	No data available.	No data available.
4-methylimidazole - (822-36-6)	34.00, Leuciscus idus	180.00, Daphnia magna	2.00, Scenedesmus subspicatus

Persistence and degradability

There is no data available on the preparation itself.

Bioaccumulative potential

No available information

Mobility in soil

No available information

Results of PBT and vPvB assessment

This product contains no PBT/vPvB/vPvM chemicals.

Other adverse effects

No available information

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Observe all federal, provincial and local regulations when disposing of this substance.

SECTION 14. TRANSPORT INFORMATION

Not regulated for packages under 5L (1.3 gallons) or 5.0 kg (11 lbs).

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	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
UN number	UN2735	UN2735	UN2735
UN proper shipping name	Polyamines, liquid, corrosive, n.o.s., (1,3-cyclohexanedimethanamine)	Polyamines, liquid, corrosive, n.o.s., (1,3-cyclohexanedimethanamine)	Polyamines, liquid, corrosive, n.o.s., (1,3-cyclohexanedimethanamine)
Transport hazard class(es)	Class: 8 Sub Class: Not Applicable	Class: 8 Sub Class: Not Applicable	Class: 8 Sub Class: Not Applicable
Packing group	III	III	III

Environmental hazards

IMDG Marine Pollutant: No;

Special precautions for user

No available information

SECTION 15. REGULATORY INFORMATION

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Classification of the substance or mixture under OSHA's Hazard Communication Standard (1910.1200) revised 2024 (GHS revision 7)

Toxic Substance Control Act (TSCA)

CAS Number	Ingredient	Toxic Substance Control Act (TSCA)	Comments	Status
0002579-20-6	1,3-bis(aminomethyl)cyclohexane	Yes		ACTIVE
0000931-36-2	1h-imidazole, 2-ethyl-4-methyl-	Yes		ACTIVE
0000111-40-0	2,2'-iminodi(ethylamine)	Yes		ACTIVE
0001761-71-3	4,4'-Diaminodicyclohexylmethane	Yes		ACTIVE

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CAS Number	Ingredient	Toxic Substance Control Act (TSCA)	Comments	Status
0000822-36-6	4-methylimidazole	Yes		ACTIVE
0031326-29-1	Epoxy-deta adduct	Yes	XU	ACTIVE

EPCRA 302 Extremely Hazardous:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Carcinogens (>0.0%):

1h-imidazole, 2-ethyl-4-methyl-

4-methylimidazole

Proposition 65 - Developmental Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 Label Warning:



WARNING: This product can expose you to chemicals including [1h-imidazole, 2-ethyl-4-methyl-, 4-methylimidazole], which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

SECTION 16. OTHER INFORMATION

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The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

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H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H350 May cause cancer.

H351 Suspected of causing cancer.

H360 May damage fertility or the unborn child.

H401 Toxic to aquatic life.

H411 Toxic to aquatic life with long lasting effects.

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