



Safety Data Sheet (SDS)

Material Name: Endurex

*** Section 1 - Chemical Product and Company Identification ***

Manufacturer Information

Nudo
1500 Taylor Avenue
Springfield, IL 62703

Phone: 217-528-5636
Fax: 217-528-8722

*** Section 2 - Hazards Identification ***

Emergency Overview

No specific hazards anticipated from normal product handling. Dust and other particulates generated during cutting, shaping, or forming may cause eye, skin, and respiratory tract irritation.

Potential Health Effects: Eyes

Dusts and particulates may cause eye irritation.

Potential Health Effects: Skin

Dusts and particulates may cause skin irritation.

Potential Health Effects: Ingestion

Not a likely route of exposure under normal product use conditions.

Potential Health Effects: Inhalation

Dusts and particulates may cause respiratory tract irritation.

HMIS Ratings: Health: 1 Fire: 0 HMIS Reactivity 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component
Not Available	Polyisocyanurate Foam
9003-53-6	Polystyrene
Trade Secret	Polypropylene Copolymer
Not Available	Cement Board
Not Available	Wood Fiber Board
9003-54-7	2-Propenenitrile polymer with ethenylbenzene
13397-24-5	Gypsum (Ca(SO4).2H2O)
101-68-8	Methylene bis(phenylisocyanate)
9016-87-9	Polymethylene polyphenylene isocyanate
9004-34-6	Cellulose
Trade Secret	Copolymer mixture
75-68-3	1-Chloro-1,1-difluoroethane
9005-25-8	Starch
811-97-2	1,1,1,2-Tetrafluoroethane
26447-40-5	1,1'-Methylenebis (isocyanato-) benzene
12280-03-4	Disodium octaborate, tetrahydrate
287-92-3	Cyclopentane
3194-55-6	Hexabromocyclododecane
78-78-4	Isopentane
109-66-0	Pentane
7631-86-9	Silica, amorphous
65997-17-3	Glass, oxide
14808-60-7	Quartz
63148-57-2	Siloxanes and Silicones, methyl hydrogen
100-42-5	Styrene

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*** Section 4 - First Aid Measures ***

First Aid: Eyes

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Eye injuries from glass particles should be treated by a physician immediately.

First Aid: Skin

For skin contact flush with large amounts of water. If irritation persists, get medical attention.

First Aid: Ingestion

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting.

First Aid: Inhalation

Move person to non-contaminated air. If the affected person is not breathing, apply artificial respiration.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

See Section 9 for Flammability Properties.
None anticipated.

Hazardous Combustion Products

Not Determined

Extinguishing Media

Use appropriate extinguishing media suitable for surrounding fire.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective gear.

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

None necessary.

Clean-Up Procedures

No special cleanup procedures needed.

Evacuation Procedures

None

Special Procedures

None

*** Section 7 - Handling and Storage ***

Handling Procedures

Avoid dust generation.

Storage Procedures

No special storage procedures needed.

*** Section 8 - Exposure Controls / Personal Protection ***

A: Component Exposure Limits

Gypsum (Ca(SO₄).2H₂O) (13397-24-5)

ACGIH: 10 mg/m³ TWA (inhalable fraction)
OSHA: 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)
NIOSH: 10 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable dust)

Methylene bis(phenylisocyanate) (101-68-8)

ACGIH: 0.005 ppm TWA
OSHA: 0.02 ppm Ceiling; 0.2 mg/m³ Ceiling
NIOSH: 0.005 ppm TWA; 0.05 mg/m³ TWA
0.020 ppm Ceiling (10 min); 0.2 mg/m³ Ceiling (10 min)

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Cellulose (9004-34-6)

ACGIH: 10 mg/m³ TWA
OSHA: 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)
NIOSH: 10 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable dust)

Starch (9005-25-8)

ACGIH: 10 mg/m³ TWA
OSHA: 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)
NIOSH: 10 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable dust)

Cyclopentane (287-92-3)

ACGIH: 600 ppm TWA
OSHA: 600 ppm TWA; 1720 mg/m³ TWA
NIOSH: 600 ppm TWA; 1720 mg/m³ TWA

Pentane (109-66-0)

ACGIH: 600 ppm TWA
OSHA: 600 ppm TWA; 1800 mg/m³ TWA
750 ppm STEL; 2250 mg/m³ STEL
NIOSH: 120 ppm TWA; 350 mg/m³ TWA
610 ppm Ceiling (15 min); 1800 mg/m³ Ceiling (15 min)

Isopentane (78-78-4)

ACGIH: 600 ppm TWA

Silica, amorphous (7631-86-9)

NIOSH: 6 mg/m³ TWA

Quartz (14808-60-7)

ACGIH: 0.025 mg/m³ TWA (respirable fraction)
OSHA: 0.1 mg/m³ TWA (respirable dust)
NIOSH: 0.05 mg/m³ TWA (respirable dust)

Styrene (100-42-5)

ACGIH: 20 ppm TWA
40 ppm STEL
OSHA: 50 ppm TWA; 215 mg/m³ TWA
100 ppm STEL; 425 mg/m³ STEL
NIOSH: 50 ppm TWA; 215 mg/m³ TWA
100 ppm STEL; 425 mg/m³ STEL

Engineering Controls

Ventilation is not normally required.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear dust goggles.

Personal Protective Equipment: Skin

None necessary.

Personal Protective Equipment: Respiratory

Not normally needed.

Personal Protective Equipment: General

None

* * * **Section 9 - Physical & Chemical Properties** * * *

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Appearance:	Multi-colored	Odor:	None
Physical State:	Solid	pH:	NA
Vapor Pressure:	ND	Vapor Density:	ND
Boiling Point:	ND	Melting Point:	ND
Solubility (H2O):	ND	Specific Gravity:	ND
Evaporation Rate:	NA	VOC:	ND
Octanol/H2O Coeff.:	ND	Flash Point:	ND
Flash Point Method:	ND	Upper Flammability Limit (UFL):	ND
Lower Flammability Limit (LFL):	ND	Burning Rate:	ND
Auto Ignition:	ND		

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

This is a stable material.

Chemical Stability: Conditions to Avoid

Avoid dust generation.

Incompatibility

Not Determined

Hazardous Decomposition

Not Determined

Possibility of Hazardous Reactions

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Dose Effects

A: General Product Information

No information available for the product.

B: Component Analysis - LD50/LC50

2-Propenenitrile polymer with ethenylbenzene (9003-54-7)

Oral LD50 Rat 1800 mg/kg

Methylene bis(phenylisocyanate) (101-68-8)

Oral LD50 Rat 9200 mg/kg

Polymethylene polyphenylene isocyanate (9016-87-9)

Inhalation LC50 Rat 490 mg/m³ 4 h; Oral LD50 Rat 49 g/kg; Dermal LD50 Rabbit >9400 mg/kg

Cellulose (9004-34-6)

Inhalation LC50 Rat >5800 mg/m³ 4 h; Oral LD50 Rat >5 g/kg; Dermal LD50 Rabbit >2 g/kg

1,1,1,2-Tetrafluoroethane (811-97-2)

Inhalation LC50 Rat 1500 g/m³ 4 h

1-Chloro-1,1-difluoroethane (75-68-3)

Inhalation LC50 Rat 2050 g/m³ 4 h

1,1'-Methylenebis (isocyanato-) benzene (26447-40-5)

Inhalation LC50 Rat 0.369 mg/L 4 h; Oral LD50 Rat >7400 mg/kg; Dermal LD50 Rabbit >6200 mg/kg

Cyclopentane (287-92-3)

Oral LD50 Mouse 12800 mg/kg; Oral LD50 Rat 11400 mg/kg

Hexabromocyclododecane (3194-55-6)

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Oral LD50 Rat >10 g/kg; Dermal LD50 Rabbit >8 g/kg

Pentane (109-66-0)

Inhalation LC50 Rat 364 g/m³ 4 h; Dermal LD50 Rabbit 3000 mg/kg; Oral LD50 Rat >2000 mg/kg

Isopentane (78-78-4)

Inhalation LC50 Rat 280000 mg/m³ 4 h

Silica, amorphous (7631-86-9)

Oral LD50 Rat >5000 mg/kg; Inhalation LC50 Rat >2.2 mg/L 1 h; Dermal LD50 Rabbit >2000 mg/kg

Quartz (14808-60-7)

Oral LD50 Rat 500 mg/kg

Styrene (100-42-5)

Inhalation LC50 Rat 11.8 mg/L 4 h; Oral LD50 Rat 1000 mg/kg

Carcinogenicity

A: General Product Information

No information available for the product.

B: Component Carcinogenicity

Polystyrene (9003-53-6)

IARC: Supplement 7 [1987]; Monograph 19 [1979] (Group 3 (not classifiable))

2-Propenenitrile polymer with ethenylbenzene (9003-54-7)

IARC: Supplement 7 [1987]; Monograph 19 [1979] (Group 3 (not classifiable))

Methylene bis(phenylisocyanate) (101-68-8)

IARC: Monograph 71 [1999]; Supplement 7 [1987]; Monograph 19 [1979] (Group 3 (not classifiable))

Polymethylene polyphenylene isocyanate (9016-87-9)

IARC: Supplement 7 [1987]; Monograph 19 [1979] (Group 3 (not classifiable))

Starch (9005-25-8)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

1,1'-Methylenebis (isocyanato-) benzene (26447-40-5)

IARC: Monograph 71 [1999]; Supplement 7 [1987]; Monograph 19 [1979] (Group 3 (not classifiable))

Silica, amorphous (7631-86-9)

IARC: Monograph 68 [1997]; Supplement 7 [1987] (Group 3 (not classifiable))

Quartz (14808-60-7)

ACGIH: A2 - Suspected Human Carcinogen

NIOSH: potential occupational carcinogen

NTP: Known Human Carcinogen (Select Carcinogen)

IARC: Monograph 68 [1997] (listed under Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources) (Group 1 (carcinogenic to humans))

Styrene (100-42-5)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 82 [2002]; Monograph 60 [1994] (Group 2B (possibly carcinogenic to humans))

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*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

No information available for the product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

1-Chloro-1,1-difluoroethane (75-68-3)

Test & Species

96 Hr LC50 Poecilia reticulata	220 mg/L [static]	Conditions
48 Hr EC50 Daphnia magna	160 mg/L	

1,1'-Methylenebis (isocyanato-) benzene (26447-40-5)

Test & Species

96 Hr EC50 Skeletonema costatum	3230 mg/L	Conditions
24 Hr EC50 Daphnia magna	>1000 mg/L	

Cyclopentane (287-92-3)

Test & Species

48 Hr EC50 Daphnia magna	10.5 mg/L	Conditions
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Pentane (109-66-0)

Test & Species

96 Hr LC50 Oncorhynchus mykiss	9.87 mg/L	Conditions
96 Hr LC50 Pimephales promelas	11.59 mg/L	
96 Hr LC50 Lepomis macrochirus	9.99 mg/L	
48 Hr EC50 Daphnia magna	9.74 mg/L	

Isopentane (78-78-4)

Test & Species

48 Hr EC50 Daphnia magna	2.3 mg/L	Conditions
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Silica, amorphous (7631-86-9)

Test & Species

96 Hr LC50 Brachydanio rerio	5000 mg/L [static]	Conditions
72 Hr EC50 Pseudokirchneriella subcapitata	440 mg/L	
48 Hr EC50 Ceriodaphnia dubia	7600 mg/L	

Styrene (100-42-5)

Test & Species

96 Hr LC50 Pimephales promelas	3.24-4.99 mg/L [flow-through]	Conditions
96 Hr LC50 Lepomis macrochirus	19.03-33.53 mg/L [static]	
96 Hr LC50 Pimephales promelas	6.75-14.5 mg/L [static]	
96 Hr LC50 Poecilia reticulata	58.75-95.32 mg/L [static]	
72 Hr EC50 Pseudokirchneriella subcapitata	1.4 mg/L	
96 Hr EC50 Pseudokirchneriella subcapitata	0.72 mg/L	
72 Hr EC50 Pseudokirchneriella subcapitata	0.46 - 4.3 mg/L [static]	
96 Hr EC50 Pseudokirchneriella subcapitata	0.15 - 3.2 mg/L [static]	

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48 Hr EC50 Daphnia magna

3.3 - 7.4 mg/L

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations. See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Not Regulated

TDG Information

Shipping Name: Not Regulated

*** Section 15 - Regulatory Information ***

US Federal Regulations

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Methylene bis(phenylisocyanate) (101-68-8)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Styrene (100-42-5)

CERCLA: 1000 lb final RQ; 454 kg final RQ

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
2-Propenenitrile polymer with ethenylbenzene	9003-54-7	No	No	No	Yes	No	No
Gypsum (Ca(SO ₄).2H ₂ O)	13397-24-5	No	No	Yes	Yes	Yes	Yes
Methylene bis(phenylisocyanate)	101-68-8	Yes	Yes	Yes	Yes	Yes	Yes
Polymethylene polyphenylene isocyanate	9016-87-9	No	No	No	Yes	No	No
Cellulose	9004-34-6	No	Yes	Yes	Yes	Yes	Yes
Starch	9005-25-8	No	Yes	Yes	No	Yes	Yes
1,1,1,2-Tetrafluoroethane	811-97-2	No	No	Yes	No	No	No
1-Chloro-1,1-difluoroethane	75-68-3	No	Yes	No	Yes	Yes	No
Cyclopentane	287-92-3	Yes	Yes	Yes	Yes	Yes	Yes
Pentane	109-66-0	Yes	Yes	Yes	Yes	Yes	Yes
Isopentane	78-78-4	No	Yes	No	Yes	Yes	No
Silica, amorphous	7631-86-9	Yes	Yes	Yes	No	Yes	No
Glass, oxide	65997-17-3	No	No	Yes	No	No	No
Quartz	14808-60-7	No	Yes	Yes	Yes	Yes	Yes
Styrene	100-42-5	Yes	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

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WARNING! This product contains a chemical known to the state of California to cause cancer.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Methylene bis(phenylisocyanate)	101-68-8	0.1 %

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Polystyrene	9003-53-6	Yes	DSL	No
2-Propenenitrile polymer with ethenylbenzene	9003-54-7	Yes	DSL	ELINCS
Gypsum (Ca(SO4).2H2O)	13397-24-5	No	DSL	No
Methylene bis(phenylisocyanate)	101-68-8	Yes	DSL	EINECS
Polymethylene polyphenylene isocyanate	9016-87-9	Yes	DSL	No
Cellulose	9004-34-6	Yes	DSL	EINECS
Starch	9005-25-8	Yes	DSL	EINECS
1,1,1,2-Tetrafluoroethane	811-97-2	Yes	DSL	EINECS
1-Chloro-1,1-difluoroethane	75-68-3	Yes	DSL	EINECS
1,1'-Methylenebis (isocyanato-) benzene	26447-40-5	Yes	DSL	EINECS
Cyclopentane	287-92-3	Yes	DSL	EINECS
Hexabromocyclododecane	3194-55-6	Yes	DSL	EINECS
Pentane	109-66-0	Yes	DSL	EINECS
Isopentane	78-78-4	Yes	DSL	EINECS
Disodium octaborate, tetrahydrate	12280-03-4	No	No	No
Silica, amorphous	7631-86-9	Yes	DSL	EINECS
Glass, oxide	65997-17-3	Yes	DSL	EINECS
Quartz	14808-60-7	Yes	DSL	EINECS
Siloxanes and Silicones, methyl hydrogen	63148-57-2	Yes	DSL	No
Styrene	100-42-5	Yes	DSL	EINECS

US. California Proposition 65

WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm.

US – California Proposition 65 – Carcinogens & Reproductive Toxicity (CRT): Listed substance
Endurex 500

Benzene	Cancer	71-43-2
Benzene	Developmental - Male	71-43-2
Carbon black (airborne, unbound particles of respirable size)	Cancer	1333-86-4
Naphthalene	Cancer	91-20-3
Titanium dioxide (airborne, unbound particles of respirable size)	Cancer	---
Styrene	Cancer	100-42-5

Endurex 515

Cobalt metal powder	Cancer	7440-48-4
Lead	Developmental - All Genders	---
Styrene	Cancer	100-42-5

Endurex 525

Cobalt metal powder	Cancer	7440-48-4
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	Lead	Developmental - All Genders	---
	Styrene	Cancer	100-42-5
	Wood dust	Cancer	---
Endurex 535			
	Cobalt metal powder	Cancer	7440-48-4
	Lead	Developmental - All Genders	---
	Styrene	Cancer	100-42-5
	Silica, crystalline (airborne particles of respirable size)	Cancer	---
Endurex 555			
	Cobalt metal powder	Cancer	7440-48-4
	Lead	Developmental - All Genders	---
	Styrene	Cancer	100-42-5
	Silica, crystalline (airborne particles of respirable size)	Cancer	---
Endurex 540			
	Cobalt metal powder	Cancer	7440-48-4
	Lead	Developmental - All Genders	---
	Styrene	Cancer	100-42-5
	Wood dust	Cancer	---
	Benzene	Cancer	71-43-2
	Benzene	Developmental - Male	71-43-2
	Carbon black (airborne, unbound particles of respirable size)	Cancer	1333-86-4
	Naphthalene	Cancer	91-20-3
	Titanium dioxide (airborne, unbound particles of respirable size)	Cancer	---
Endurex 350P			
	Cadium	Cancer	112.41
	Cadium	Developmental- Male	112.41
	Chromium hexavalent	Cancer	51.9961
	Chromium hexavalent	Developmental - All Genders	51.9961
	Lead	Cancer	207.2
	Lead	Developmental - All Genders	207.2
	Mercury	Developmental - Toxicity	200.59
Endurex 550P			
	Cadium	Cancer	112.41
	Cadium	Developmental- Male	112.41
	Chromium hexavalent	Cancer	51.9961
	Chromium hexavalent	Developmental - All Genders	51.9961
	Lead	Cancer	207.2
	Lead	Developmental - All Genders	207.2
	Mercury	Developmental - Toxicity	200.59
Endurex 535			
	Cobalt metal powder	Cancer	7440-48-4
	Lead	Developmental - All Genders	---
	Styrene	Cancer	100-42-5
	Silica, crystalline (airborne particles of respirable size)	Cancer	---

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Benzene	Cancer	71-43-2
Benzene	Developmental - Male	71-43-2
Carbon black (airborne, unbound particles of respirable size)	Cancer	1333-86-4
Naphthalene	Cancer	91-20-3
Titanium dioxide (airborne, unbound particles of respirable size)	Cancer	---

Endurex 315

Cobalt metal powder	Cancer	7440-48-4
Lead	Developmental - All Genders	---
Styrene	Cancer	100-42-5

Endurex 325

Cobalt metal powder	Cancer	7440-48-4
Lead	Developmental - All Genders	---
Styrene	Cancer	100-42-5
Wood dust	Cancer	---

Endurex 335

Cobalt metal powder	Cancer	7440-48-4
Lead	Developmental - All Genders	---
Styrene	Cancer	100-42-5
Silica, crystalline (airborne particles of respirable size)	Cancer	---

*** Section 16 - Other Information ***

Other Information

The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration, NJTSR = New Jersey Trade Secret Registry.

End of Sheet