

**1. IDENTIFICATION OF THE PRODUCT & MANUFACTURER****Product identifier**

Mixture identification:  
Trade name: ES-90  
Trade code: 9019454.EI

**Recommended use of the chemical and restrictions on use**

Recommended use: Polyurethane-based adhesive  
Restrictions on use: N.A.

**Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party**

Company: Ecore International  
715 Fountain Avenue, Lancaster, PA 17601 - USA  
Phone: 1-800-322-1923  
Responsible: Not available

**Emergency 24 hour numbers:**

CHEMTREC 1-800 424-9300

**2. HAZARD(S) IDENTIFICATION****Classification of the chemical**

Eye Irrit 2A	Causes serious eye irritation
Resp. Sens. 1	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sens. 1	May cause an allergic skin reaction.
Carc. 2	Suspected of causing cancer if inhaled.
STOT RE 2	May cause damage to organs through prolonged or repeated exposure if inhaled.

**Label elements**

Pictograms and Signal Words



Danger

**Hazard statements:**

H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H351	Suspected of causing cancer if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.

**Precautionary statements:**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe mist/vapours/spray.
P264	Wash skin thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	[In case of inadequate ventilation] wear respiratory protection.
P302+P352 IF ON SKIN: Wash with plenty of water.	
P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position 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.	
P308+P313 IF exposed or concerned: Get medical advice/attention.	
P314	Get medical advice/attention if you feel unwell.
P321	Specific treatment (see supplementary instructions on this label)

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P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
 P337+P313 If eye irritation persists: Get medical advice/attention.  
 P342+P311 If experiencing respiratory symptoms: Call a doctor.  
 P362+P364 Take off contaminated clothing and wash it before reuse.  
 P405 Store locked up.  
 P501 Dispose of contents/container in accordance with applicable regulations.

**Ingredient(s) with unknown acute toxicity:**

None

**Hazards not otherwise classified identified during the classification process:**

None

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Substances**

N.A.

**Mixtures**

Hazardous components within the meaning of 29 CFR 1910.1200 and related classification:

**List of components**

Concentration (% w/w)	Name	Ident. Numb.	Classification
2.5-5 %	diphenylmethane-2,4-diisocyanate; o-(p-Isocyanatobenzyl)phenyl isocyanate	CAS:5873-54-1	Eye Irrit. 2A, H319; Skin Irrit. 2, H315; STOT SE 3, H335; Resp. Sens. 1, H334; Acute Tox. 4, H332; STOT RE 2, H373; Skin Sens. 1, H317
2.5-5 %	calcium oxide; quicklime	CAS:1305-78-8	Skin Irrit. 2, H315; STOT SE 3, H335; Eye Dam. 1, H318
1-2.5 %	4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-	CAS:101-68-8	Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335; STOT RE 2, H373; Carc. 2, H351; Resp. Sens. 1, H334; Skin Sens. 1, H317
0.25-0.49 %	4-methylbenzenesulfonyl isocyanate; 4-isocyanatosulphonyltoluene	CAS:4083-64-1	Eye Irrit. 2A, H319; STOT SE 3, H335; Skin Irrit. 2, H315; Resp. Sens. 1, H334
0.1-0.25 %	carbon black; acetylene black	CAS:1333-86-4	Comb. Dust, USH003

### 4. FIRST AID MEASURES

**Description of first aid measures**

In case of skin contact:

Immediately take off all contaminated clothing.  
 OBTAIN IMMEDIATE MEDICAL ATTENTION.  
 Obtain medical attention if skin related symptoms persist.  
 Remove contaminated clothing immediately and dispose of safely.  
 After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.  
 Protect uninjured eye.

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## 4. FIRST AID MEASURES (CONTINUED)

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and the hazard label.

In case of Inhalation:

If breathing is irregular or stopped, administer artificial respiration.

In case of inhalation, consult a doctor immediately and show him packing or label.

### Most important symptoms/effects, acute and delayed

Eye irritation

Eye damages

### Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

(see paragraph 4.1)

## 5. FIRE-FIGHTING MEASURES

### Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO<sub>2</sub>).

### Unsuitable extinguishing media:

None in particular.

### Specific hazards arising from the chemical

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

Hazardous combustion products: N.A.

Explosive properties: Not Relevant

Oxidizing properties: Not Relevant

### Special protective equipment and precautions for fire-fighters

Use suitable breathing apparatus.

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Provide adequate ventilation.

Use appropriate respiratory protection.

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Limit leakages with earth or sand.

### Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand

Retain contaminated washing water and dispose it.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Exercise the greatest care when handling or opening the container.

Use localized ventilation system.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

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## 7. HANDLING AND STORAGE (CONTINUED)

### Conditions for safe storage, including any incompatibilities

Storage temperature: N.A.  
 Keep away from food, drink and feed.  
 Incompatible materials:  
 None in particular.  
 Instructions as regards storage premises:  
 Adequately ventilated premises.

## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

### Control parameters List of components with OEL value

Component	OEL Type	Country	Ceiling	Long Term mg/m3	Long Term ppm	Short Term mg/m3	Short Term ppm	Note			
diphenylmethane-2,4-diisocyanate; o-(p-Isocyanatobenzyl) phenyl isocyanate	MAK	AUSTRIA		0.05	0.005	0.01	0.01				
calcium oxide; quicklime	OSHA ACGIH	GERMANY		5 2				upper respiratory tract irritation;			
	MAK ACGIH			1 2							
	MAK MAK	AUSTRIA SWITZERLAND		1 2					4		
4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-	ACGIH	GERMANY	C					respiratory sensitization (listed under Methylene bisphenyl isocyanate (MDI));			
	OSHA								0.05	0.005	0.2
	MAK ACGIH	AUSTRIA							0.05	0.005	0.1
carbon black; acetylene black	OSHA			3.5				A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans;bronchitis			
	ACGIH			3							
	ACGIH			3					A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans;bronchitis;		

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## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION (CONTINUED)

Appropriate engineering controls: N.A.

### Individual protection measures

Eye protection:

Use close fitting safety goggles, don't use eye lens.

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.

Protection for hands:

Suitable materials for safety gloves; 29 CFR 1910.138 - ANSI/ISEA 105:

Polychloroprene - CR: thickness  $\geq 0,5\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Nitrile rubber - NBR: thickness  $\geq 0,35\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Butyl rubber - IIR: thickness  $\geq 0,5\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Fluorinated rubber - FKM: thickness  $\geq 0,4\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Use impervious gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber.

Respiratory protection:

Respiratory protection must be used where exposure levels exceed workplace exposure limits. Refer to 29 CFR 1910.134 - CSA Z94.4 for information on selection and use of appropriate respiratory protection equipment.

Use adequate protective respiratory equipment.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Physical state: Liquid

Appearance and colour: paste Grey

Odour: mild

Odour threshold: Not Relevant

pH: Not Relevant

Melting point / freezing point: Not Relevant

Initial boiling point and boiling range: Not Relevant

Flash point: 100 °C (212 °F)

Evaporation rate: Not Relevant

Upper/lower flammability or explosive limits: Not Relevant

Vapour density: Not Relevant

Vapour pressure: Not Relevant

Relative density: 1.52 g/cm<sup>3</sup>

Solubility in water: Soluble

Solubility in oil: Insoluble

Partition coefficient (n-octanol/water): Not Relevant

Auto-ignition temperature: Not Relevant

Decomposition temperature: Not Relevant

Viscosity: Not Relevant

Explosive properties: Not Relevant

Oxidizing properties: Not Relevant

Solid/gas flammability: Not Relevant

### Other information

Substance Groups relevant properties Not Relevant

Miscibility: Not Relevant

Fat Solubility: Not Relevant

Conductivity: Not Relevant

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## 10. STABILITY AND REACTIVITY

### Reactivity

Stable under normal conditions

### Chemical stability

Data not available.

### Possibility of hazardous reactions

None.

### Conditions to avoid

Stable under normal conditions.

### Incompatible materials

None in particular.

### Hazardous decomposition products

None.

## 11. TOXICOLOGICAL INFORMATION

### Information on toxicological effects

#### Toxicological information of the mixture:

There is no toxicological data available on the mixture. Consider the individual concentration of each component to assess toxicological effects resulting from exposure to the mixture.

#### Toxicological information on main components of the mixture:

calcium oxide; quicklime	a) acute toxicity	LD50 Oral Rat = 500 mg/kg
4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato	a) acute toxicity	LC50 Inhalation Rat = 369 mg/m <sup>3</sup> 4h LD50 Oral Rat = 31600 mg/kg
4-methylbenzenesulfonyl isocyanate; 4-isocyanatosulphonyltoluene	a) acute toxicity	LC50 Inhalation Rat > 640 ppm 1h
carbon black; acetylene black	a) acute toxicity	LD50 Oral Rat > 15400.00000 mg/kg LD50 Skin Rabbit > 3.00000 g/kg LD50 Oral Rat > 15400 mg/kg

**If not differently specified, the information required in the regulation and listed below must be considered as N.A.**

- a) acute toxicity
- b) skin corrosion/irritation
- c) serious eye damage/irritation
- d) respiratory or skin sensitisation
- e) germ cell mutagenicity
- f) carcinogenicity
- g) reproductive toxicity
- h) STOT-single exposure  
Toxicological kinetics, metabolism  
and distribution information
- i) STOT-repeated exposure
- j) aspiration hazard

#### Substance(s) listed on the IARC Monographs:

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato- Group 3  
carbon black; acetylene black Group 2B

#### Substance(s) listed as OSHA Carcinogen(s):

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## 11. TOXICOLOGICAL INFORMATION (CONTINUED)

carbon black; acetylene black

**Substance(s) listed as NIOSH Carcinogen(s):**

carbon black; acetylene black

**Substance(s) listed on the NTP report on Carcinogens:**

None

## 12. ECOLOGICAL INFORMATION

### Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

### List of components with eco-toxicological properties

Component	Ident Numb	Ecotox Infos
calcium oxide; quicklime	CAS: 1305- 78-8	a) Aquatic acute toxicity : LC50 Fish Cyprinus carpio = 1070 mg/L 96h IUCLID
carbon black; acetylene black	CAS: 1333- 86-4	a) Aquatic acute toxicity : EC50 Daphnia Magna > 5600.00000 mg/L 1333-86-4 - 24hr

### Persistence and degradability

N.A.

### Bioaccumulative potential

N.A.

### Mobility in soil

N.A.

### Other adverse effects

N.A.

## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Recover if possible.

Methods of disposal:

Disposal of this product, solutions, packaging 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.

Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor.

Do not dispose of waste into sewers.

Disposal considerations:

Do not allow to enter drains or watercourses.

Dispose of product according to all federal, state and local applicable regulations.

If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned.

Dispose of containers contaminated by the product in accordance with local or national legal provisions. For further information, contact your local waste authority.

Special precautions:

This material and its container must be disposed of in a safe way. Care should be taken when handling untreated empty containers.

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Empty containers or liners may retain some product residues. Do not re-use empty containers.

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## 14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

### UN number

ADR-UN number: N.A.

DOT-UN Number: N.A.

IATA-Un number: N.A.

IMDG-Un number: N.A.

TDG-UN number: N.A

### UN proper shipping name

ADR-Shipping Name: N.A.

DOT-Proper Shipping Name: N.A.

IATA-Technical name: N.A.

IMDG-Technical name: N.A.

TDG-Shipping Name: N.A.

### Transport hazard class(es)

ADR-Class: N.A.

DOT-Hazard Class: N.A.

IATA-Class: N.A.

IMDG-Class: N.A.

TDG-Class: N.A.

### Packing group

ADR-Packing Group: N.A.

DOT-Packing group: N.A.

IATA-Packing group: N.A.

IMDG-Packing group: N.A.

TDG-Packing Group: N.A

### Environmental hazards

Marine pollutant: No

Environmental Pollutant: N.A.

### Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

N.A.

### Special precautions

Department of Transportation (DOT): N.A.

Road and Rail (ADR-RID) : N.A.

Air (IATA) : N.A.

Sea (IMDG) :N.A.

TDG Special Provisions: N.A.

## 15. REGULATORY INFORMATION

### USA - Federal regulations

#### TSCA - Toxic Substances Control Act

##### TSCA inventory:

All the components are listed on the TSCA inventory

##### TSCA listed substances:

diphenylmethane-2,4- diisocyanate; o-(p- Isocyanatobenzyl)phenyl isocyanate is listed in TSCA Section 8b Section 8a - PAIR

calcium oxide; quicklime is listed in TSCA Section 8b

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'- methylenebis[4-isocyanatois listed in TSCA Section 8b Section 8a - PAIR

4-methylbenzenesulfonyl isocyanate; 4- isocyanatosulphonyltoluene is listed in TSCA Section 8b

carbon black; acetylene black is listed in TSCA Section 8b

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**15. REGULATORY INFORMATION  
(CONTINUED)****SARA - Superfund Amendments and Reauthorization Act****Section 302 - Extremely Hazardous Substances:**

No substances listed

**Section 304 - Hazardous substances:**

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-

**Section 313 - Toxic chemical list:**

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-

**CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act****Substance(s) listed under CERCLA:**

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-

Reportable quantity: 5000 pounds

**CAA - Clean Air Act**

CAA listed substances: 4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-

methylenebis[4-isocyanato is listed in CAA Section 112(b) - HAP Section 112(b) - HON

**CWA - Clean Water Act****CWA listed substances:**

No substances listed

**USA - State specific regulations****California Proposition 65**

Substance(s) listed under California Proposition 65:

carbon black; acetylene black Listed as carcinogen

**Massachusetts Right to know**

Substance(s) listed under Massachusetts Right to know:

calcium oxide; quicklime

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanatocarbon  
black; acetylene black

**Pennsylvania Right to know**

Substance(s) listed under Pennsylvania Right to know:

calcium oxide; quicklime

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanatocarbon  
black; acetylene black

**New Jersey Right to know**

Substance(s) listed under New Jersey Right to know:

calcium oxide; quicklime

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanatocarbon  
black; acetylene black

**Canada - Federal regulations****DSL - Domestic Substances List****DSL Inventory:**

All the substances are listed in the DSL.

**NDSL - Non Domestic Substances List****NDSL Inventory:**

No substances listed

**NPRI - National Pollutant Release Inventory****Substances listed in NPRI:**

No substances listed

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## 16. OTHER INFORMATION

Safety Data Sheet dated: 6/30/2021 - version 1

### Additional classification information

NFPA Health: 1 = Slight

NFPA Flammability: 1 = Combustible if heated

NFPA Reactivity: 0 = Minimal

NFPA Special Risk: N.A.



Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. The information herein is presented in good faith and believed to be accurate as of the effective date given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws. This document was prepared by a competent person who has received appropriate training. It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended. This SDS cancels and replaces any preceding release.

Code	Description
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H351	Suspected of causing cancer if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.
USH003	May form combustible dust concentrations in air.
CANH003	May form combustible dust concentrations in air.

### Legend to abbreviations and acronyms used in the safety data sheet:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.

IMDG: International Maritime Code for Dangerous Goods.

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

ICAO: International Civil Aviation Organization.

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

CLP: Classification, Labeling, Packaging.

EINECS: European Inventory of Existing Commercial Chemical Substances.

INCI: International Nomenclature of Cosmetic Ingredients.

CAS: Chemical Abstracts Service (division of the American Chemical Society).

GefStoffVO: Ordinance on Hazardous Substances, Germany.

LC50: Lethal concentration, for 50 percent of test population.

LD50: Lethal dose, for 50 percent of test population.

DNEL: Derived No Effect Level.

PNEC: Predicted No Effect Concentration.

TLV: Threshold Limiting Value.

TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).

STEL: Short Term Exposure limit.

STOT: Specific Target Organ Toxicity.

WGK: German Water Hazard Class.

KSt: Explosion coefficient.