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## SAFETY DATASHEET

# EMS Force® SI-4011 Cyanoacrylate Adhesive (for Acidic Surfaces)

according to Regulation (EC) No. 1907/2006(REACH) with its amendment Regulation (EC) No. 2015/830

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product name : EMS Force® SI-4011 Cyanoacrylate Adhesive for Acidic Surfaces  
Contains : Ethyl cyanoacrylate

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

Use of the substance/mixture : Bonding insensitive large surfaces; wooden, cardboard, fabric, leather etc..

### 1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier : **Metsan Endüstriyel Yapıştırıcılar Ticaret Anonim Şirketi**  
Birlik Organize Sanayi Bölgesi Batı Caddesi 1.Sokak No.1  
34953 Tuzla, İstanbul TURKEY  
Telephone: +90 216 444 06 49  
Telefax: +90 212 253 42 12  
Web: [www.metsan.gen.tr](http://www.metsan.gen.tr)  
Responsibility statement : For further information please contact with following e-mail address, [sds@metsan.gen.tr](mailto:sds@metsan.gen.tr)

### 1.4. Emergency telephone number

Metsan: +90 444 0 649 (available from 7:30 to 17:00 GMT+3)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

According to Regulation (EC) No. 1272/2008 [CLP]

Skin corrosion/irritation : Category 2 (H315)  
Eye irritation : Category 2 (H319)  
Specific target organ toxicity : Category 1 (H335)  
after single exposure

### 2.2. Label elements

According to Regulation (EC) No. 1272/2008 [CLP]

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### Hazard pictogram(s)

GHS 07



Signal word : Warning

### Hazard statement(s)

Physical hazards : There is no physical hazards.

Health hazards : H315: Causes skin irritation.  
H319: Causes serious eye irritation.  
H335: May cause respiratory irritation.

Environmental hazards : There is no environmental hazards.

### Precautionary statement(s)

Prevention : P261: Avoid breathing fume, gas and vapours.  
P280: Wear protective gloves and eye protection.

Response : P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313: If eye irritation persists: Get medical advice/attention.

Storage : There is no storage statement.

Disposal : P501: Dispose of contents/container to an approved disposal plant.

### Supplemental hazard information (EU)

EUH202: Cyanoacrylate. Danger. Bonds skin and eyes in seconds. Keep out of the reach of children.

### Supplemental information on the label

CYANOACRYLATE, DANGER: Bonds skin and eyes in seconds. If eyelids are bonded, do not force open. In case of skin bonding, quickly soak in warm water and avoid excessive force to free bonded area.

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### 2.3. Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).  
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable for this product.

### 3.2. Mixtures

Name	CAS No. EC No.	REACH Registration No.	wt%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Ethyl 2-cyanoacrylate	7085-85-0 230-391-5	01- 2119527766-29	80.0 - <99.0	Skin Irrit. 2- H315 Eye Irrit. 2- H319 STOT SE 3- H335 <sup>[1]</sup>
2-Propenoic acid, 2-methyl-, methyl ester, polymer with methyl 2-propenoate	9011-87-4 618-476-9	No REACH registration number available.	1.0 - <10.0	Skin Irrit. 2- H315 Eye Irrit. 2- H319 STOT SE 3- H335 <sup>[1]</sup>
Hydroquinone	123-31-9 204-617-8	01- 2119987571-26	0.05 - <0.2	Acute Tox. 4- H332 Skin Sens. 1- H317 Eye Dam. 1- H318 Muta. 2- H341 Carc. 2- H351 Aquatic Acute 1- H400

- Up to the given revision date of this safety data sheet only the above mentioned REACH registration numbers are assigned to the chemical substances used in this mixture.

### Additional information

See full text of H-phrases in chapter 16.

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### SECTION 4: First aid measures

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#### 4.1. Description of first aid measures

##### Inhalation

Avoid inhalation of vapour or mist. Move to fresh air in case of accidental inhalation of vapours. If breathing is irregular or stopped, administer artificial respiration. If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

##### Ingestion

If swallowed, seek medical advice immediately and show this container or label. Do NOT induce vomiting. Keep at rest.

##### Skin contact

Do NOT use solvents or thinners. Take off all contaminated clothing immediately. Wash skin thoroughly with soap and water or use recognized skin cleanser. If skin irritation persists, call a physician.

##### Eye contact

Remove contact lenses. Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Seek medical advice.

##### Self-protection of the first aider

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

#### 4.2. Most important symptoms and effects, both acute and delayed

Please see practical experience in Section 11.

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

No information available.

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### SECTION 5: Firefighting measures

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#### 5.1. Extinguishing media

##### Suitable extinguishing media

Use a fire fighting agent suitable for ordinary combustible material such as dry chemicals, carbon dioxide or foam to extinguish.

##### Unsuitable extinguishing media

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Do not use high power water jet.

### 5.2. Special hazards arising from the substance or mixture

#### Hazardous combustion products

Closed containers exposed to heat from fire may build pressure and explode. Exposure to extreme heat can give rise to thermal decomposition.

#### Hazardous decomposition or by-products

Burning of product will give heavy smoke. The original ingredients or unidentified toxic and/or irritant compounds may be present in the combustion fumes. Also, decomposition products may include carbon dioxide, carbon monoxide and metal oxides.

### 5.3. Advice for firefighters

Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture. When fire fighting conditions are severe and total thermal decomposition of the product is possible, wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, tunic and trousers (leggings), bands (around arms, waist and legs), face mask, and protective covering for exposed areas of the head.

#### Special protective equipment and fire fighting procedures

There is no specific recommended protective equipment other than suggested above. For further information on protective equipment requirements, please check Section 8.

#### Additional information

In case of fire, keep containers cool with water spray.

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## SECTION 6: Accidental release measures

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### 6.1. Personal precautions, protective equipment and emergency procedures

Refer to Section 8 of SDS for personal protection details. If outside do not approach from downwind. If outside keep bystanders upwind and away from danger point. Mark out the contaminated area with signs and prevent access to unauthorized personnel. Turn leaking containers leak-side up to prevent the escape of liquid.

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### 6.2. Environmental precautions

Do not let product enter drains. Notify the respective authorities in accordance with local law in the case of contamination of rivers, lakes or waste water systems. Please avoid any emission of volatile organic compounds as possible.

### 6.3. Methods and materials for containment and cleaning up

Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations. The contaminated area should be cleaned up immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts), concentrated (density: 0,880) ammonia solution (5 parts). After usage of suitable decontaminant, transfer the material to a closable, labelled salvage container for disposal by an appropriate method.

### 6.4. Reference to other sections

For appropriate self protection equipment, please apply the suggested protection procedures given in Section 8.

For disposal of waste, please see advices in Section 13.

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## SECTION 7: Handling and storage

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### 7.1. Precautions for safe handling

#### Safe handling advice

Avoid inhalation of thermal decomposition products. For industrial or professional use only. Workers should wash hands and face before eating, drinking and smoking. Store work clothes separately from other clothing, food and tobacco products. Do not handle until all safety precautions have been read and understood. Wash contaminated clothing before reuse. Avoid breathing vapors. Contaminated work clothing should not be allowed out of the workplace. See Section 8 for additional information on exposure controls and personal protection.

### 7.2. Conditions for safe storage, including any incompatibilities

#### Requirements for storage areas and containers

Store in original containers at 10-25°C (50-77°F) dry area and do not leave top of the cartridge open as contamination from air or other environment may reduce the shelf life of the product.

#### Advice on common storage

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Store separately from oxidizing agents, strongly alkaline and basic materials, amines, alcohols and water. Do not store together with explosives, gases, oxidizing solids, products which form flammable gases in contact with water, oxidizing products, infectious products and radioactive products.

### Additional information on storage conditions

Protect against UV, sunlight and humidity. Keep away from heat sources and humid media.

### 7.3. Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Community / national occupational exposure limit values

Ethyl 2-cyanoacrylate (CAS No: 7085-85-0)				
	Limit value – Eight hours		Limit value – Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Austria	2	9	-	-
Belgium	0.2	1.04	-	-
Canada (Ontario)	0.2	-	-	-
Denmark	2	10	4	20
Finland	0.2	1	-	-
Ireland	0.2	-	-	-
Poland	-	1	-	2
Spain	0.2	-	-	-
Sweden	2	10	4	20
Switzerland	2	9	-	-
USA - NIOSH	50	215	100*	425*
USA - OSHA	100	-	200	-
United Kingdom	-	-	0.3	1.5

Hydroquinone (CAS No: 123-31-9)				
	Limit value – Eight hours		Limit value – Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Australia	-	2	-	-
Austria	-	2 (inhalable aerosol)	-	4 (inhalable aerosol)
Belgium	-	2	-	-
Canada (Ontario)	-	1	-	-
Canada (Quebec)	-	2	-	-

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Denmark	-	2	-	4
Finland	-	0.5	-	2
France	-	2	-	-
Ireland	-	0.5	-	-
People's Republic of China	-	1	-	2
Poland	-	1	-	2
Singapore	-	2	-	-
South Korea	-	2	-	-
Spain	-	2	-	-
Sweden	-	0.5	-	1.5
Switzerland	-	2 (inhalable aerosol)	-	2 (inhalable aerosol)
United Kingdom	-	0.5	-	-
USA - NIOSH	-	-	-	2
USA - OSHA	-	2	-	-

- OEL values that are given in this subsection are taken from GESTIS International Limit Values database.
- If a component is disclosed in Section 3 but does not appear in the table given above, an occupational exposure limit value is not available for the corresponding component.

### Information on monitoring procedures

#### DN(M)ELs

CAS No.	Chemical name	End use	Exposure routes	Frequency of exposure	Type	Value
7085-85-0	Ethyl 2-cyanoacrylate	Workers	Inhalation	Chronic	Local	9.25 mg/m <sup>3</sup>
		Workers	Inhalation	Chronic	Systemic	9.25 mg/m <sup>3</sup>
		Consumers	Inhalation	Chronic	Local	9.25 mg/m <sup>3</sup>
		Consumers	Inhalation	Chronic	Systemic	9.25 mg/m <sup>3</sup>
123-31-9	Hydroquinone	Workers	Inhalation	Chronic	Systemic	2.1 mg/m <sup>3</sup>
		Workers	Dermal	Chronic	Systemic	3.33 mg/kg bw/day
		Consumers	Inhalation	Chronic	Systemic	1.05 mg/m <sup>3</sup>
		Consumers	Dermal	Chronic	Systemic	1.66 mg/kg bw/day
		Consumers	Oral	Chronic	Systemic	0.6 mg/kg bw/day

- If a component is disclosed in Section 3 but does not appear in the table given above, a DN(M)EL is not available for the corresponding component.

#### PNECs

CAS No.	Chemical name	Environmental protection target	Value	Extrapolation method
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123-31-9	Hydroquinone	Freshwater	0.57 µg/L	Assessment factor: 10
		Marine water	0.057 µg/L	Assessment factor: 100
		Intermittent releases	0.1.34 µg/L	Assessment factor: 100
		STP	0.71 mg/L	Assessment factor: 100
		Sediment (freshwater)	4.9 µg/kg sediment dw	Partition coefficient
		Sediment (marine water)	0.49 µg/kg sediment dw	Partition coefficient
		Soil	0.64 µg/kg soil dw	Partition coefficient

- If a component is disclosed in Section 3 but does not appear in the table given above, a PNEC is not available for the corresponding component.

## 8.2. Exposure controls

### Appropriate engineering controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are close to the workstation location.

### Personal protection

Personal protection equipment :



Eye protection : Safety glasses with side shields or chemical safety goggles should be worn if there is a risk of splashing of material.

Skin protection : Hand and other skin protection  
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate

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compatible gloves/protective clothing. Gloves made from the following material(s) are recommended:  
- Butyl rubber at least 0.5 mm thickness  
- Fluoroelastomer at least 0.4 mm thickness

Respiratory protection : In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

### Environmental exposure controls

Do not let product enter drains. For ecological information refer to Section 12. Also, check for Environmental Precautions in Section 6.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance : Liquid  
Color : Colorless to very light yellow  
Odor : Sharp, irritating  
Odor threshold : No data available.

<u>Property</u>	<u>Values</u>	<u>Method(s) and remark(s)</u>
pH	Not applicable.	
Melting point/freezing point	<0°C	
Initial boiling point and boiling range	50-60°C	at 0.2-0.5kPa
Flash point	83°C	
Evaporation rate	Negligible.	
Flammability (solid, gas)	Not applicable.	
Flammability limit in air		
Upper flammability limit	No data available.	
Lower flammability limit	1.7%	in volume
Vapor pressure	0.20-0.27kPa	at 25°C
Vapor density	4.3	

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Relative density	1.1	at 20°C (Ref. water at 20°C)
Solubility(ies)		
In water	Polymerize in water	
In other solvent(s)	Soluble in acetone	
Partition coefficient: n-octanol/water	No data available.	
Auto-ignition temperature	No data available.	
Decomposition temperature	No data available.	
Viscosity	No data available.	
Explosive properties	Not classified.	
Oxidising properties	Not classified.	

### 9.2. Other data

<u>Property</u>	<u>Values</u>	<u>Method(s) and remark(s)</u>
Softening temperature	No data available.	
VOCs content	No data available.	
Density	1.1 g/cm <sup>3</sup>	at 20°C

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Keep away from basic materials and water. Mixture can rapidly polymerize with these materials and produce heat. Evolution of heat in closed containers causes overpressure and produces a risk of bursting.

### 10.2. Chemical stability

This product is considered stable under normal storage and handling conditions.

### 10.3. Possibility of hazardous reactions

Cause heating by polymerization in contact with water and basic materials, or under high temperature, high humidity and direct sunlight.

### 10.4. Conditions to avoid

Stable under recommended storage and handling conditions (see Section 7). Avoid any contact with heat sources.

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### 10.5. Incompatible materials to avoid

Basic materials, water, acids, reducers, peroxides and oxidants. Also, please refer to reactivity in this section.

### 10.6. Hazardous decomposition products

May emit toxic fumes of carbon monoxide, carbon dioxide and nitrogen oxides on combustion.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### General observations

The mixture is classified based on the available hazard information for the ingredients as defined in the classification criteria for mixtures for each hazard class or differentiation in Annex I to Regulation 1272/2008/EC. Due to the absence of specific data on the mixture regarding interactions between component substances, relevant health effects of each substance are listed. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

#### Practical experience

No information available

Ethyl 2-cyanoacrylate (CAS No: 7085-85-0)	
Type of exposure	Result
Acute toxicity	Rat LD50 Oral: >5000 mg/kg bw (OECD) Rabbit LD50 Dermal – 24h exposure: >2000 mg/kg bw (OECD)
Skin corrosion/irritation	Rabbit – 24h exposure: Slightly irritating (OECD)
Serious eye damage/irritation	Rabbit – 72h exposure: Irritating (OECD)
Germ cell mutagenicity	TA 1535 Gene mutation – In vitro: Not mutagenic (OECD)
Carcinogenicity	Dog Implantation – No evidence of carcinogenicity.
Yutma	Ağızdan - Sıçan LD50 - Letal doz, yüzde 50 ölüm: 1060 mg/kg (RTECS)

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Hydroquinone (CAS No: 123-31-9)	
Type of exposure	Result
Acute toxicity	Rat LD50 Oral Single treatment: >300 – 600< mg/kg bw (OECD) Rat LC0 Inhalation 8 hours: >=2.8 mg/L air (OECD) Rat LD50 Dermal 24 hours: >900 mg/kg bw (OECD)
Skin corrosion/irritation	Rabbit – 24h exposure: Not irritating (OECD)
Respiratory or skin sensitisation	Mouse : Sensitising (OECD)
Serious eye damage/irritation	Rabbit – 72h exposure: Irritating (OECD)
Germ cell mutagenicity	Lymphocytes from a healthy male human donor Chromosome aberration – In vitro: Not mutagenic (OECD) Mouse Chromosome aberration – In vivo: Mutagenic (OECD)
Carcinogenicity	Rat Oral 103 weeks – Evidence of carcinogenicity.
Reproductive toxicity	Rat Oral:feed - NOAEL 15 mg/kg bw/day (OECD)

## SECTION 12: Ecological information

### 12.1. Toxicity

No test data available for the product.

Hydroquinone (CAS No: 123-31-9)	
Type of toxicity	Result
Acute toxicity	Oncorhynchus mykiss (fish) LC50 96 hours: 0.638 mg/L (OECD) Daphnia magna (invertebrates) EL50 8 hours: >1000 mg/L (OECD)
Chronic (long-term) toxicity	Pimephales promelas (fish) NOEC 32 days: >=100 µg/L Daphnia magna (invertebrates) NOEC 21 days: 0.006 mg/L (OECD)
Toxicity to aquatic algae and cyanobacteria	Pseudokirchnerella subcapitata – 72h exposure EC50: 0.33 mg/L (OECD) Pseudokirchnerella subcapitata – 72h exposure EC10: 0.034 mg/L (OECD)

### 12.2. Persistence and degradability

The product can be biodegradable as its ingredients are all classified as biodegradable.

Hydroquinone (CAS No: 123-31-9)	
Result	
Ready biodegradability - O <sub>2</sub> consumption 14 days: 70% Degradation (OECD)	

### 12.3. Bioaccumulative potential

Hydroquinone (CAS No: 123-31-9)	
Result	

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Log Kow = 0.59  
BCF = 3.162  
No evidence of carcinogenicity.

### 12.4. Mobility in soil

No information available.

### 12.5. Results of PBT and vPvB assessment

Based on available data no ingredient is classified for this hazard property (please see section 3).

### 12.6. Other adverse effects

The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and is classified for eco-toxicological properties accordingly. See sections 2 and 3 for details.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Dispose of in accordance with local regulations.

Product disposal : Contribution of this product to waste is significant.  
Packaging disposal : After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorized legal land fill site or incinerated.

### Waste disposal number of waste (acc. to European Waste Catalogue)

20 01 27 : MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS; Paint, inks, adhesives and resins containing dangerous substances  
08 04 09 : WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS,) ADHESIVES, SEALANTS AND PRINTING INKS; wastes from MFSU of adhesives and sealants (including waterproofing products);

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waste adhesives and sealants containing organic solvents or other dangerous substances

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### SECTION 14: Transport information

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#### 14.1. UN number

Not restricted according to ADN, ADR, DOT, IATA, IMDG, RID.

#### 14.2. UN proper shipping name

Not restricted according to ADN, ADR, DOT, IATA, IMDG, RID.

#### 14.3. Transport hazard class(es)

Not restricted according to ADN, ADR, DOT, IATA, IMDG, RID.

#### 14.4. Packaging group

Not restricted according to ADN, ADR, DOT, IATA, IMDG, RID.

#### 14.5. Environmental hazards

Not restricted according to ADN, ADR, DOT, IATA, IMDG, RID.

#### 14.6. Special precautions for user

Not restricted according to ADN, ADR, DOT, IATA, IMDG, RID.

#### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

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### SECTION 15: Regulatory information

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#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

##### Australia (AICS)

All ingredients are on the inventory or exempt from listing.

##### Canada (DSL)

All ingredients are on the inventory or exempt from listing.

##### Canada (NDSL)

None of the ingredients are on the inventory of NDSL.

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### China (IECSC)

All ingredients are on the inventory or exempt from listing.

### European Union (EINECS)

All ingredients are on the inventory or exempt from listing.

### European Union (ELINCS)

None of the ingredients are on the inventory of ELINCS.

### Japan (ENCS)

All ingredients are on the inventory or exempt from listing.

### Philippines (PICCS)

All ingredients are on the inventory or exempt from listing.

### South Korea (KECI)

All ingredients are on the inventory or exempt from listing.

### Taiwan (TCSI)

All ingredients are on the inventory or exempt from listing.

### United States of America (TSCA)

All ingredients are on the inventory or exempt from listing.

## 15.2. Chemical Safety Assessment

No safety checks were carried out on the mixture.

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## SECTION 16: Other information

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### Information taken from reference works and the literature

This SDS is prepared via using latest available SDS of ingredients that are provided from the manufacturers. Also, to confirm the validity of data and to give all necessary information, several databases are used. This references are listed below.

Substance number : CAS No. – <https://scifinder.cas.org>



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# EMS Force® SI-4011 Cyanoacrylate Adhesive (for Acidic Surfaces)

according to Regulation (EC) No. 1907/2006(REACH) with its amendment Regulation (EC) No. 2015/830

OEL values : GESTIS – <http://limitvalue.ifa.dguv.de/>  
DN(M)EL and PNEC values : ECHA – <http://echa.europa.eu/information-on-chemicals>  
SDS of raw materials  
Inventories given in Section 15 : AICS – <http://nicnas.gov.au/search>  
DSL & NDSL – [http://ec.gc.ca/lcpe-cepa/eng/substance/chemicals\\_polymers.cfm](http://ec.gc.ca/lcpe-cepa/eng/substance/chemicals_polymers.cfm)  
IECSC – <http://cciss.cirs-group.com/>  
EINECS & ELINCS– <http://echa.europa.eu/information-on-chemicals/ec-inventory>  
ENCS – <http://safe.nite.go.jp/english/db.html>  
KECI – <http://ncis.nier.go.kr/totinfo/TotInfoList.jsp>  
PICCS –  
<http://119.92.161.5/internal/public/searchprojects.aspx>  
TCSI - <http://csnn.osha.gov.tw/content/home/index.aspx>  
TSCA - <http://www.epa.gov/tsca-inventory>

### Abbreviations and acronyms

ADN : European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road  
AGS : The German Committee on Hazardous Substances  
AICS : Australian Inventory of Chemical Substances  
ATE : Acute Toxicity Estimate  
BCF : Bioconcentration factor  
BOD : Biological Oxygen Demand  
CAS : Chemical Abstracts Service  
CLP : Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008  
DFG : German Research Foundation  
DN(M)EL : Derived No (Minimal) Effect Level  
DOT : Department of Transportation (USA)  
DSD : Dangerous Substances Directive 67/548/EEC

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DSL	: Domestic Substances List
EC	: European Community
EC0	: Effective Concentration that Produces a Stimulation Index of 0
EC3	: Effective Concentration that Produces a Stimulation Index of 3
EC50	: Half Maximal Effective Concentration
EINECS	: European Inventory of Existing Commercial Substances
ELINCS	: European List of notified Chemical Substances
EN	: European Standard
ENCS	: Japanese Existing and New Chemical Substances Inventory
GHS	: Globally Harmonized System
IATA	: International Air Transport Association
ICAO-TI	: Technical Instructions for the Safe Transport of Dangerous Goods by Air
IECSC	: Inventory of Existing Chemical Substances in China
IMDG	: International Maritime Dangerous Goods
KECI	: Korea Existing Chemicals Inventory
LC50	: Lethal Concentration to 50 % of a test population
LD50	: Lethal Dose to 50% of a test population (Median Lethal Dose)
LOEC	: Lowest Observable Effect Concentration
Log K <sub>ow</sub>	: Log10 of octanol-water partition coefficient
NDSL	: Non-Domestic Substances List
NIOSH	: The National Institute for Occupational Safety and Health
NOEC	: No Observed Effect Concentration
OECD	: Organization for Economic Co-operation and Development
OEL	: Occupational Exposure Limit
OSHA	: Occupational Safety & Health Administration
OSHA	: European Agency for Safety and Health at work
PBT	: Persistent, Bioaccumulative and Toxic substance
PICCS	: Philippine Inventory of Chemicals and Chemical Substances

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PNEC	:	Predicted No Effect Concentration
REACH	:	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	:	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	:	Safety data sheet
STOT	:	Specific Target Organ Toxicity
TCSI	:	Taiwan Chemical Substance Inventory
TOC	:	Total Organic Carbon
TSCA	:	Toxic Substances Control Act
VOC	:	Volatile Organic Compound
vPvB	:	Very Persistent and Very Bioaccumulative

### Full text of classification codes

Acute Tox. 4	:	Acute toxicity – Category 4
Aquatic Acute 1	:	Aquatic environment – Category 1
Carc. 2	:	Carcinogenicity – Category 2
Eye Dam. 1	:	Eye damage/eye irritation – Category 1
Eye Irrit. 2	:	Eye damage/eye irritation – Category 2
Muta. 2	:	Germ cell mutagenicity – Category 2
Skin Irrit. 2	:	Skin corrosion/irritation – Category 2
Skin Sens. 1	:	Skin sensitization – Category 1
STOT SE 3	:	Specific target organ toxicity – Single exposure – Category 3

### Full text of H phrases with no. appearing in Section 3

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.
H335	:	May cause respiratory irritation.
H341	:	Suspected of causing genetic defects.

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H351 : Suspected of causing cancer.  
H400 : Very toxic to aquatic life.

### Revision changes

Version 1.0 - All sections and data are modified to comply with Regulation (EC) No. 1907/2006(REACH) with its amendment Regulation (EC) No. 2015/830.

### Composer of Safety Data Sheet

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Certification program/company: NBC

Certificate number: 01.76.06

### Additional information

EMS Force® is a registered trademark of Metsan Endüstriyel Yapıştırıcılar Ticaret A.Ş.

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