

## Moplen RP310M

Version	Revision Date:	SDS Number:	Date of last issue: 05/29/2020
1.5	03/18/2023	BE8757	Date of first issue: 07/29/2014

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

### **1.1 Product identifier**

Trade name	: Moplen RP310M
Synonyms	: Ethylene-Propylene copolymer, 1-Propene-Ethylene-
	Copolymer
Substance name	: 1-Propene, Polymer with Ethene
Substance No.	9010-79-1
Chemical characterization	: Polypropylene copolymer

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

Identified uses	:	Manufacture of plastic articles by injection molding, extrusion or other conversion process.
Prohibited uses	:	FDA Class III medical devices; European class III medical devices; Health Canada class IV Medical Devices; Applications involving permanent implantation into the body; Life-sustaining medical applications

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

<b>Company</b> Basell Sales & Marketing Company B.V. Delftseplein 27E 3013 AA Rotterdam Netherlands	Registration number NA	<b>Telephone</b> 31 (0) 10 275 55 00
E-mail address : product.sa Responsible/issuing person	afety@lyb.com	
1.4 Emergency telephone number		

Basell Sales & Marketing Company B.V.

### +32 3 575 1235

#### Poison Center:

Gesundheid Österreich GMBH AT: +43 1 406 43 43 24 hours all days

## **SECTION 2: Hazards identification**

## 2.1 Classification of the substance or mixture

## Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.



## Moplen RP310M

Version	Revision Date:	SDS Number:	Date of last issue: 05/29/2020
1.5	03/18/2023	BE8757	Date of first issue: 07/29/2014

### 2.2 Label elements

### Labeling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

May form explosible dust-air mixture if small particles are generated during further processing, handling, or by other means.

### **SECTION 3: Composition/information on ingredients**

### 3.1 Substances

Substance name	:	1-Propene, Polymer with Ethene
CAS-No.	:	9010-79-1

#### Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)	M-Factor, SCL, ATE
1-Propene, Polymer with Ethene	9010-79-1	> 99.5	

### **SECTION 4: First aid measures**

#### 4.1 Description of first-aid measures

General advice	:	Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid.
If inhaled	:	Remove person to fresh air. If signs/symptoms continue, get medical attention. In case of excessive inhalation of fumes that may be generat- ed during heating of this material, move the person to fresh air. Obtain medical attention. Keep person warm, if necessary give Cardio-Pulmonary Re- suscitation (CPR)
		2 / 14

according to Regulation (EC) No. 1907/2006



Version 1.5	Revision Date: 03/18/2023		S Number: 8757	Date of last issue: 05/29/2020 Date of first issue: 07/29/2014
	se of skin contact		If molton motor	al contacts the skip, immediately fluch with
in ca	se of skin contact	•		al contacts the skin, immediately flush with of water to cool the affected tissue and poly-
			-	to peel polymer from skin as this will remove
			Obtain immedia or extensive.	te emergency medical attention if burn is deep
In ca	se of eye contact	:		oughly with water for several minutes and seek on if discomfort persists.
				contact with molten polymer: ush eye(s) with cool running water for at least
			Beyond flushing adherent to the	
			·	ek medical attention.
If swa	allowed	:	Adverse health	effects due to ingestion are not anticipated.
4.2 Most	important symptoms ar	nd e	ffects, both acu	ite and delayed
Sym	ptoms	:		ocess fumes and vapors may cause soreness throat and coughing.
Risks	S	:		th the eyes can lead to mechanical irritation. may cause thermal burns.
4.3 Indica	ation of any immediate	med	lical attention a	nd special treatment needed
Treat	tment	:		verexposure should be directed at the control o the clinical condition of the patient.
SECTIO	N 5: Firefighting meas	sur	es	
5.1 Exting	guishing media			
Suita	able extinguishing media	:	SMALL FIRE: Use dry chemic	al, CO2, or water spray.
			LARGE FIRES: Use water spra	y hose nozzles from a safe location.
Unsu medi	uitable extinguishing a	:	None known.	
5.2 Speci	al hazards arising from	the	substance or r	nixture
Spec fighti	rific hazards during fire ng	:	In case of fire h produced such	n heat and sources of ignition. azardous decomposition products may be as: de, carbon dioxide and unburned hydrocar-
			bons (smoke).	

according to Regulation (EC) No. 1907/2006



## Moplen RP310M

Version 1.5	Revision Date: 03/18/2023		OS Number: 8757	Date of last issue: 05/29/2020 Date of first issue: 07/29/2014
5.3 Advice	for firefighters			
Special protective equipment for fire-fighters		:		ositive pressure self-contained breathing fighter protective clothing.
Furthe	r information	:	ditions. Calorific Value: 80 Fight fire from saf zles. Heat from fire ma flammable vapors Move containers f	culate solid, will decompose under fire con- 000 - 11000 kcal/kg e distance with hose lines or monitor noz- y melt, decompose polymer, and generate rom fire area if it can be done without risk. ately in the event of opening of storage con-

Do not attempt to get on top of storage containers involved in
fire.
Cool storage containers with large volumes of water even
after fire is out.

Always stay away from tanks engulfed in fire.

tainer pressure relief devices or discoloration of container.

## **SECTION 6: Accidental release measures**

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

Personal precautions	:	Equip responders with proper protection. Creates dangerous slipping hazard on any hard smooth sur- face. Equip emergency responders with proper personal protective equipment (PPE) Avoid generating dust. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Potential combustible dust hazard. Polymer particles create slipping hazard on hard smooth sur- faces.
6.2 Environmental precautions Environmental precautions	:	Do not flush into surface water or sanitary sewer system.
6.3 Methods and material for co		<b>U</b> .
Methods for cleaning up	:	On land, sweep/shovel into suitable disposal containers or vacuum using equipment which avoids ignition risk. On water, material is insoluble; collect and contain as any solid.

All recovered material should be packaged, labeled, transported and disposed of or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices. Reclaim where possible.



## Moplen RP310M

Version	Revision Date:	SDS Number:	Date of last issue: 05/29/2020
1.5	03/18/2023	BE8757	Date of first issue: 07/29/2014

## 6.4 Reference to other sections

For disposal considerations see section 13., For personal protection see section 8.

## **SECTION 7: Handling and storage**

### 7.1 Precautions for safe handling

Advice on safe handling :	Material is in a pellet form. If converted to small particles during further processing, han- dling, or by other means, may form combustible dust concen- trations in air. Avoid dust accumulation in enclosed space. Avoid generating dust; fine dust suspended in air and in the presence of an ignition source is a potential dust explosion hazard. Static discharge (spark), or other ignition sources, in high dust environments may ignite the dust and result in a dust explo- sion Electrostatic charge may build during conveying or handling. Equipment handling polymer should be conductive and grounded (earthed) and bonded. Metal containers involved in the transfer of this material should be grounded and bonded. All electrical equipment should conform to applicable electric codes and regulatory requirements for areas handling com- bustible dusts. After handling, always wash hands thoroughly with soap and water. When bringing the material to processing temperatures vapors may develop may condense in the exhaust ventilation. See section 10.
Hygiene measures :	Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be per- formed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Take off contaminated clothing and wash before reuse.
7.2 Conditions for safe storage, inc	luding any incompatibilities
Requirements for storage : areas and containers	Store in a dry location. Use good housekeeping practices during storage, transferring and handling. Process enclosures and adequate ventilation should be used to avoid excessive dust accumulation. Store away from excessive heat and away from strong oxidizing agents. Keep container closed to pre- vent contamination. Take measures to prevent the build up of electrostatic charge.

## 7.3 Specific end use(s)



## Moplen RP310M

Version	Revision Date:	SDS Number:	Date of last issue: 05/29/2020
1.5	03/18/2023	BE8757	Date of first issue: 07/29/2014
	00,10,2020	820.01	

Specific use(s) : See Section 1.2.

### **SECTION 8: Exposure controls/personal protection**

### 8.1 Control parameters

### **Occupational Exposure Limits**

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Non-specified (in- ert or nuisance) dust	Not As- signed	TWA	10 mg/m3 (inhalable)	US (ACGIH)
		TWA	3 mg/m3 (respirable)	US (ACGIH)

#### 8.2 Exposure controls

### Engineering measures

Follow the recommendations in international standard NFPA 654 (as amended and adopted) for equipment used to handle this product.

Engineering controls, i.e. enclosed systems, should be used whenever feasible to maintain exposures below acceptable criteria. When such controls are not feasible, or sufficient to achieve full conformance, other engineering controls such as local exhaust ventilation should be used. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

#### Personal protective equipment

Eye protection	:	Dust service goggles should be worn to prevent mechanical injury or other irritation to eyes due to airborne particles which may result from handling this product.
Hand protection		
Remarks	:	Wear gloves that provide thermal protection where there is a potential for contact with heated material.
Skin and body protection	:	Wear suitable protective clothing.
Respiratory protection	:	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recom- mended exposure limits. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Use appropriate respiratory protection where atmosphere exceeds recommended limits. Where workers could be exposed to dust concentrations above the exposure limit they must use appropriate certified respirators.

according to Regulation (EC) No. 1907/2006



## Moplen RP310M

Version	Revision Date:	SDS Number:	Date of last issue: 05/29/2020
1.5	03/18/2023	BE8757	Date of first issue: 07/29/2014

### **SECTION 9: Physical and chemical properties**

## 9.1 Information on basic physical and chemical properties

		7 / 14
Explosives	:	No Data Available.
9.2 Other information		
Relative vapor density	:	Not applicable.
Density	:	< 1 g/cm3
Vapor pressure	:	Not applicable.
Partition coefficient: n- octanol/water	:	No Data Available.
Solubility(ies) Water solubility	:	Insoluble.
Viscosity Viscosity, dynamic	:	Not applicable.
рН	:	Not applicable.
Decomposition temperature	:	Carbon monoxide, olefinic and paraffinic compounds, trace amounts of organic acids, ketones, aldehydes and alcohols may be formed.
Flash point	:	No Data Available.
Lower explosion limit / Lower flammability limit	:	The minimum explosive concentration (MEC) for polymer dust varies according to particle size distribution.
Upper explosion limit / Upper flammability limit	:	Not applicable.
		Polymer will burn but does not easily ignite.
Flammability	:	May form combustible dust concentrations in air.
Boiling point/boiling range	:	Not applicable.
Melting point/range	:	50 - 170 °C
Odor Threshold	:	No value available.
Odor	:	Slight.
Color	:	Translucent to white
Physical state	:	pellets

according to Regulation (EC) No. 1907/2006



Version 1.5	Revision Date: 03/18/2023	SDS Number: BE8757	Date of last issue: 05/29/2020 Date of first issue: 07/29/2014
Oxidi	zing properties	: Not consid	ered an oxidizing agent.
Self-i	gnition	: > 300 °C	
Evap	oration rate	: Not applica	able.
SECTION	N 10: Stability and I	eactivity	
<b>10.1 Reac</b> No kr	c <b>tivity</b> nown reactivity hazard	5.	
	<b>nical stability</b> e under normal conditi	ons.	
10.3 Poss	sibility of hazardous i	eactions	
Haza	rdous reactions	: None know	/n.
	ditions to avoid		
Cond	litions to avoid	: Avoid conta open flame	act with strong oxidizers, excessive heat, sparks or e.
10.5 Incol	mpatible materials		
Mate	rials to avoid	: Material ma	ay be softened by some hydrocarbons.
	rdous decompositio	-	
Not e	expected to decompose	e under normal con	ditions.
SECTION	N 11: Toxicological	information	
11.1 Infor	mation on hazard cla	sses as defined i	n Regulation (EC) No 1272/2008
Acut	e toxicity		
Com	ponents:		
1-Pro	opene, Polymer with	Ethene:	
Acute	e oral toxicity	: Assessmen icity	t: The substance or mixture has no acute oral tox-
Acute	e inhalation toxicity	: Assessmen tion toxicity	t: The substance or mixture has no acute inhala-
Acute	e dermal toxicity	: Assessmen toxicity	t: The substance or mixture has no acute dermal

according to Regulation (EC) No. 1907/2006



ersion 5	Revision Date: 03/18/2023	SDS Number: BE8757	Date of last issue: 05/29/2020 Date of first issue: 07/29/2014
Skin	corrosion/irritation		
<u>Com</u> p	oonents:		
1-Pro	pene, Polymer with	Ethene:	
Resul		: No skin irritatio	n
Serio	us eye damage/eye	irritation	
<u>Comp</u>	oonents:		
1-Pro	pene, Polymer with	Ethene:	
Rema	arks	: Mechanical irri	tation is possible.
Resp	iratory or skin sens	itization	
<u>Comp</u>	oonents:		
1-Pro	pene, Polymer with	Ethene:	
Resul	t	: Did not cause	sensitization on laboratory animals.
Germ	cell mutagenicity		
Comp	oonents:		
	• •		lable data, the classification criteria are not me
Carci	nogenicity		
Comp	oonents:		
1-Pro	pene, Polymer with	Ethene:	
Carcir ment	nogenicity - Assess-	: No evidence o	f carcinogenicity in animal studies.
Repro	oductive toxicity		
Comp	oonents:		
1-Pro	pene, Polymer with	Ethene:	
Repro sessn	oductive toxicity - As- nent	: Based on avai	lable data, the classification criteria are not me
STOT	-single exposure		
<u>Comp</u>	oonents:		
1-Pro	pene, Polymer with	Ethene:	
	sment		or mixture is not classified as specific target

according to Regulation (EC) No. 1907/2006



## Moplen RP310M

eated exposure <u>nts:</u> , Polymer with Etl nt toxicity <u>nts:</u>	hene: : The substance	, single exposure. e or mixture is not classified as specific target , repeated exposure.
nts: , Polymer with Etl <sup>ht</sup> toxicity	: The substance	, ,
, Polymer with Etl <sup>ht</sup> toxicity	: The substance	, ,
toxicity	: The substance	
toxicity		
-		
nte:		
<u>ns.</u>		
•		
n on other hazard	ds	
disrupting prope	erties	
nt	ered to have e REACH Article	e/mixture does not contain components consid- ndocrine disrupting properties according to a 57(f) or Commission Delegated regulation 0 or Commission Regulation (EU) 2018/605 at or higher.
	on toxicity classific n on other hazard disrupting prope	ered to have e REACH Article (EU) 2017/210

## 12.1 Toxicity

## Components:

1-Propene,	Polymer	with	Ethene:
------------	---------	------	---------

Toxicity to fish	:	Remarks: Aquatic toxicity is unlikely due to low solubility.
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No toxicity at the limit of solubility.
Toxicity to algae/aquatic plants	:	Remarks: No toxicity at the limit of solubility.
Toxicity to microorganisms	:	Remarks: No toxicity at the limit of solubility.
Toxicity to fish (Chronic tox- icity)	:	Remarks: No toxicity at the limit of solubility.
Toxicity to daphnia and other aquatic invertebrates (Chron-	:	Remarks: No toxicity at the limit of solubility.



Version 1.5	Revision Date: 03/18/2023	SDS Number: BE8757	Date of last issue: 05/29/2020 Date of first issue: 07/29/2014				
ic tox	icity)						
Ecoto	oxicology Assessme	nt					
Acute	aquatic toxicity	: Not classifi	: Not classified				
Chror	Chronic aquatic toxicity		Not classified				
Toxic	Toxicity Data on Soil		Not expected to adsorb on soil.				
12.2 Persi	stence and degrada	bility					
<u>Com</u>	oonents:						
1-Pro	pene, Polymer with	Ethene:					
Biode	gradability	: Remarks: 7	The polymer is too large to be bioavailable.				
12.3 Bioa	ccumulative potentia	I					
Com	oonents:						
	pene, Polymer with cumulation		This material is not expected to bioaccumulate.				
12.4 Mobi	lity in soil						
Com	oonents:						
1-Pro	pene, Polymer with	Ethene:					
Mobil	ity	: Remarks: r	no data available				
12.5 Resu	Its of PBT and vPvB	assessment					
Prod	uct:						
Asses	ssment	to be either	ance/mixture contains no components considered persistent, bioaccumulative and toxic (PBT), or tent and very bioaccumulative (vPvB) at levels of pher.				
12.6 Endo	crine disrupting pro	perties					
Prod	uct:						
Asses	ssment	ered to hav REACH Ar (EU) 2017/	nce/mixture does not contain components consid- re endocrine disrupting properties according to ticle 57(f) or Commission Delegated regulation 2100 or Commission Regulation (EU) 2018/605 at 1% or higher.				
12.7 Othe	r adverse effects						
Prod	uct:						

according to Regulation (EC) No. 1907/2006



## Moplen RP310M

Versi 1.5	ion	Revision Date: 03/18/2023		OS Number: 8757	Date of last issue: 05/29/2020 Date of first issue: 07/29/2014	
	Additional ecological infor- mation		:	No data available on this product. However, birds, fish and other wildlife may eat pellets which may obstruct their intestinal tracts.		
9	Compo	onents:				
	1-Propene, Polymer with Ethene:					
	Enviror pathwa	nmental fate and ys	:	This material is no	ot volatile and insoluble in water.	
	Addition mation	nal ecological infor-	:	Ecotoxicity is exposed as a constraint of polym	ected to be minimal based on the low water ers.	

## **SECTION 13: Disposal considerations**

### 13.1 Waste treatment methods

Product

: All recovered material should be packaged, labeled, transported and disposed of or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices. Reclaim where possible. Recycle if possible.

## **SECTION 14: Transport information**

### 14.1 UN number

Not regulated for transport

### 14.2 UN proper shipping name

Not regulated for transport

### 14.3 Transport hazard class(es)

Not regulated for transport

### 14.4 Packing group

Not regulated for transport

### 14.5 Environmental hazards

Not applicable

### 14.6 Special precautions for user

No special precautions required.

### 14.7 Maritime transport in bulk according to IMO instruments



## Moplen RP310M

Version	Revision Date:	SDS Number:	Date of last issue: 05/29/2020
1.5	03/18/2023	BE8757	Date of first issue: 07/29/2014

Not applicable

### **SECTION 15: Regulatory information**

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

### Other international regulations

#### Global Inventory Status

The ingredients of this product are compliant with the following chemical inventory requirements or exemptions.

Country/Region	Inventory	Status Description
Australia	AICS	Listed
Canada	DSL	Listed
China	IECSC	Listed
Europe	REACH	See Compliance Statement*
Japan	ENCS	Listed
Korea	K REACH	Pre-registration period *
New Zealand	NZIoC	Listed
Philippines	PICCS	Listed
United Kingdom	UK REACH	See Compliance Statement*
United States of America	TSCA	Listed
Taiwan	TCSCA	Listed
Turkey	KKDIK	Pre-registration period *

\* If the product has been purchased domestically from the notifying/registering legal entity of the LyondellBasell group of companies. We confirm that all substances (in this preparation) have been registered in accordance with the deadlines set forth in the applicable regulation. During the "Pre-registration period", we confirm that all substances in this preparation have been pre-registered or, where required under the regulation, registered, and that we have the intention to proceed with their registration in accordance with the deadlines set forth in the deadlines set forth in the regulation. For more information, please contact reach@lyondellbasell.com.

† For more information on the status of this material, please contact chemical control at global.chemical.control@lyondellbasell.com.

## 15.2 Chemical safety assessment

No information available.



## Moplen RP310M

Version	Revision Date:	SDS Number:	Date of last issue: 05/29/2020
1.5	03/18/2023	BE8757	Date of first issue: 07/29/2014

## **SECTION 16: Other information**

## Full text of other abbreviations

US (ACGIH)	:	US (ACGIH)
US (ACGIH) / TWA	:	Time weighted average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA -European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization: IECSC - Inventory of Existing Chemical Substances in China: IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; 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); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance: PICCS - Philippines Inventory of Chemicals and Chemical Substances: (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI -Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

AUS2 / EN