



MICROPLASTICS – TOMORROW'S MACRO PROBLEM

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PLASTICS ...

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... MEET THE GROWING NEEDS OF SOCIETY

... ENABLE ENERGY SAVING

... PROVIDE A SAFE AND SUSTAINABLE LIFE

... CLIMATE PROTECTION

... ENABLE SAFETY AND RESOURCE EFFICIENCY SOLUTIONS

... PROTECT AND SAVE LIVES

... HARD TO IMAGINE LIFE WITHOUT IT





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- **>300 mill tons** plastics are produced annually for various applications (*IUCN*)
 - **cca 8 mill tons** plastics end up in the oceans annually and account for up to 80% of all marine litter (*IUCN*)
- sensitivity of aquatic organisms
- Plastic pollution of the oceans is a global, most widespread problem of marine ecosystems
- Plastic wastes--> endangered food quality and safety, human health, coastal tourism, contribution to global climate change
 - presence of other chemicals (hormone disruptors, carcinogens, ...)
 - binding of contaminants to the surface -> accumulation in the environment and entry into the food chain

“A BOON OR BANE?”



PALSTICS – THE FACTS

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since 1950...
**GLOBAL PLASTICS
PRODUCTION = 8.3 billions
of tones**

1.5 mill tons (1950)



230 mill tons (2009)



World

2018 **359** million tonnes → 2019 **368** million tonnes



EUROPE

PRODUCTION:



- > 55,000 COMPANIES (*mostly SME*)
- > 1,5 mill JOBS
- > 350 bill € TRADE BALANCE(2019)

Source: *PlasticsEurope*

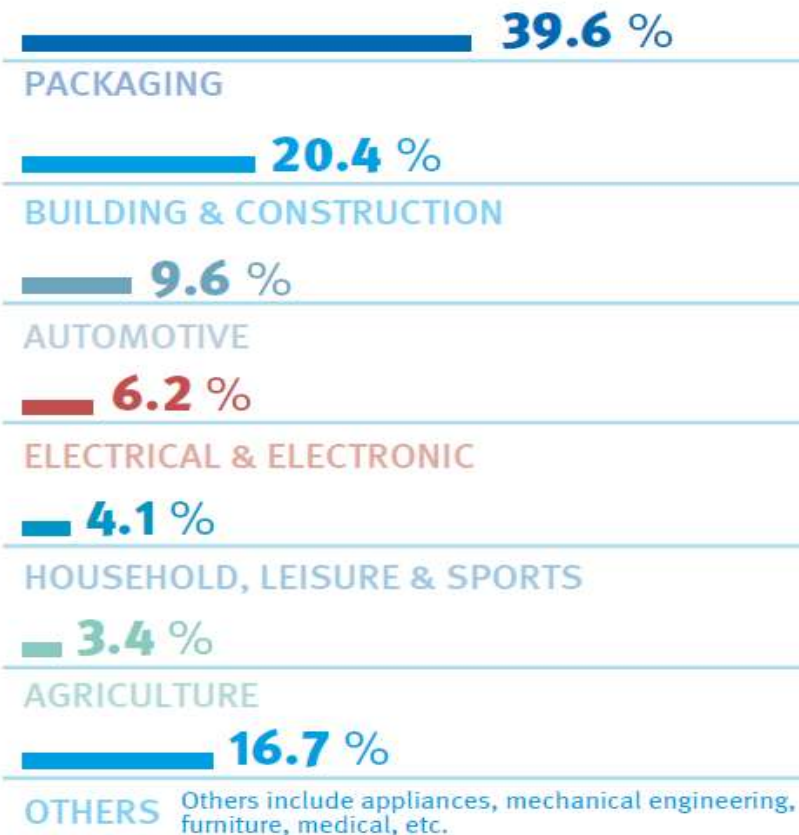
EUROPE

Plastics demand by segment 2019

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50.7 Million tonnes
Total European
plastics converters
demand



Source: *PlasticsEurope*

EUROPE

Plastics demand

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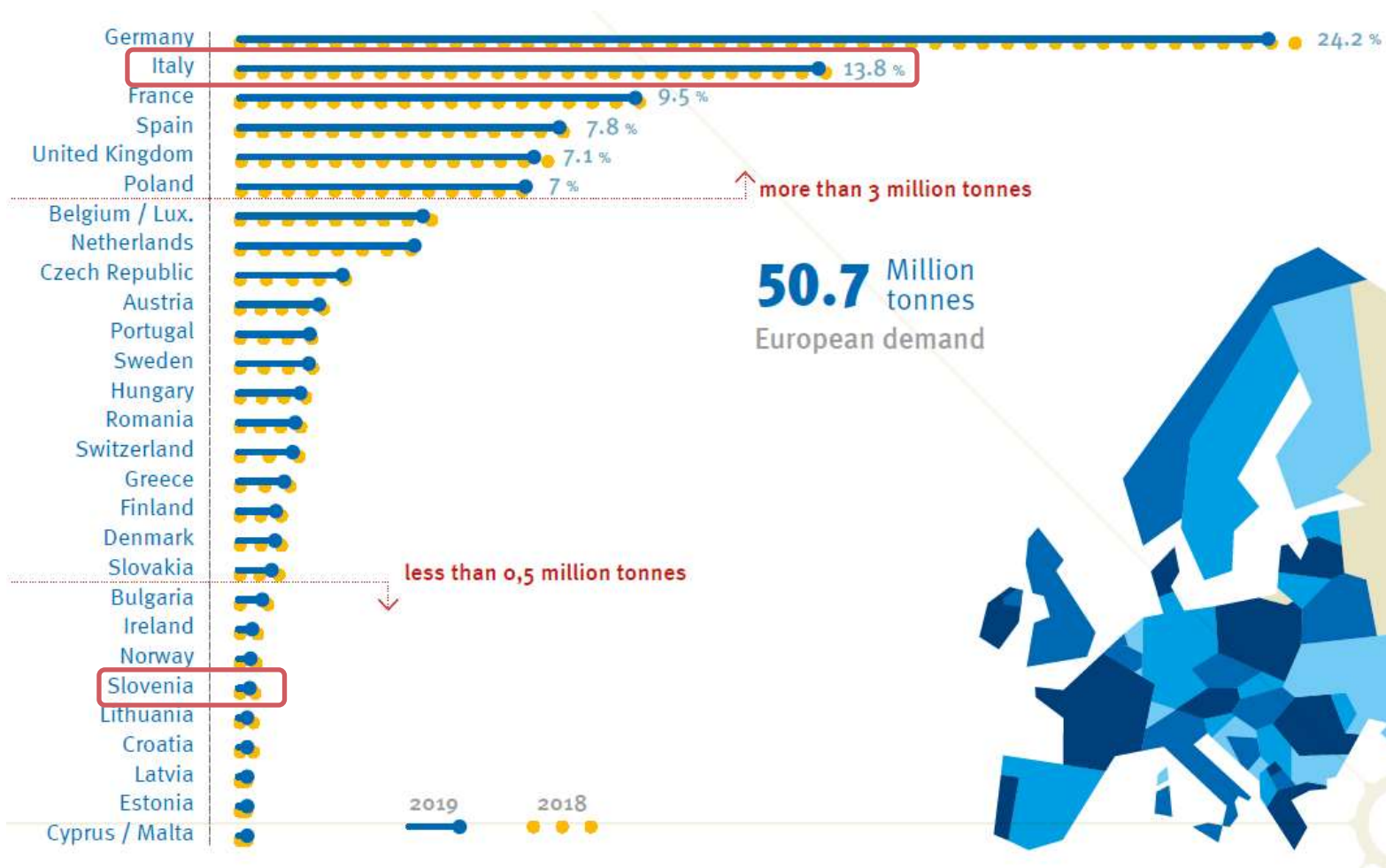
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	2009	2019	
SEGMENT	45,0 mill tons	50,7 mill tons	↑ 12,6 %
PACKAGING	40,1 %	39,6 %	
BUILDINGS and CONSTRUCTIONS	20,4 %	20,4 %	
AUTOMOTIVE	7,0 %	9,6 %	
ELECTRICAL and ELECTRONIC	5,6 %	6,2 %	
HOUSEHOLD, LEISURE and SPORTS	-	4,1 %	
AGRICULTURE	-	3,4 %	
OTHERS (mechanical engineering, furniture, medical, etc.)	26,7 %	16,7 % (24,2 %)	
global POPULATION	6,84 billions	7,90 billions	↑ 15,5 %
EU POPULATION	0,73 billions	0,75 billions	↑ 2,7 %

Source: PlasticsEurope;
<https://www.worldometers.info/population/>

EUROPE

Plastics demand 2019



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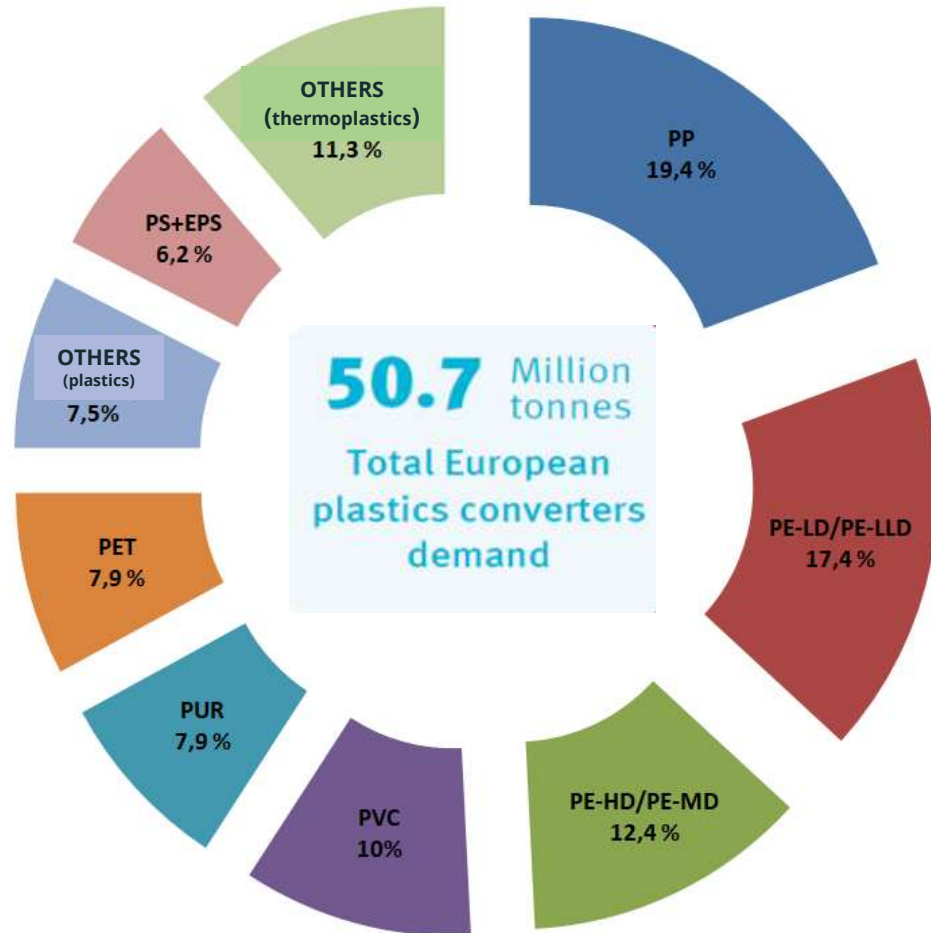


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Source: PlasticsEurope

EUROPE

Plastics demand by resin types 2019



LEADING
POLYMERS ARE THE
POLYOLEFINS
(49,2 %)

polyethylen (PE)
polypropylen (PP)

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Source: PlasticsEurope

EUROPE

Plastics demand by resin types

	2009	2019
PP	19 %	19,4 %
PE-LD/PE-LLD	17 %	17,4 %
PE-HD/PE-MD	12 %	12,4 %
PVC	11 %	10 %
PUR	7 %	7,9 %
PET	8 %	7,9 %
PS+EPS	8 %	6,2 %
OTHERS	18 %	18,8 %

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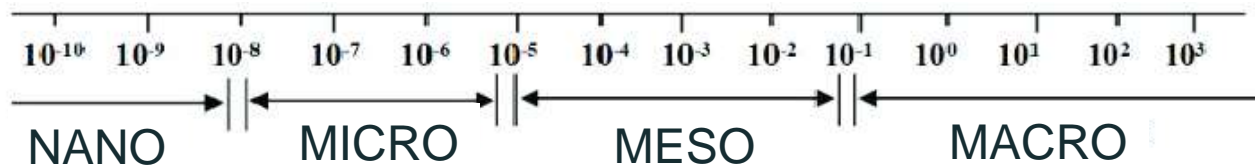
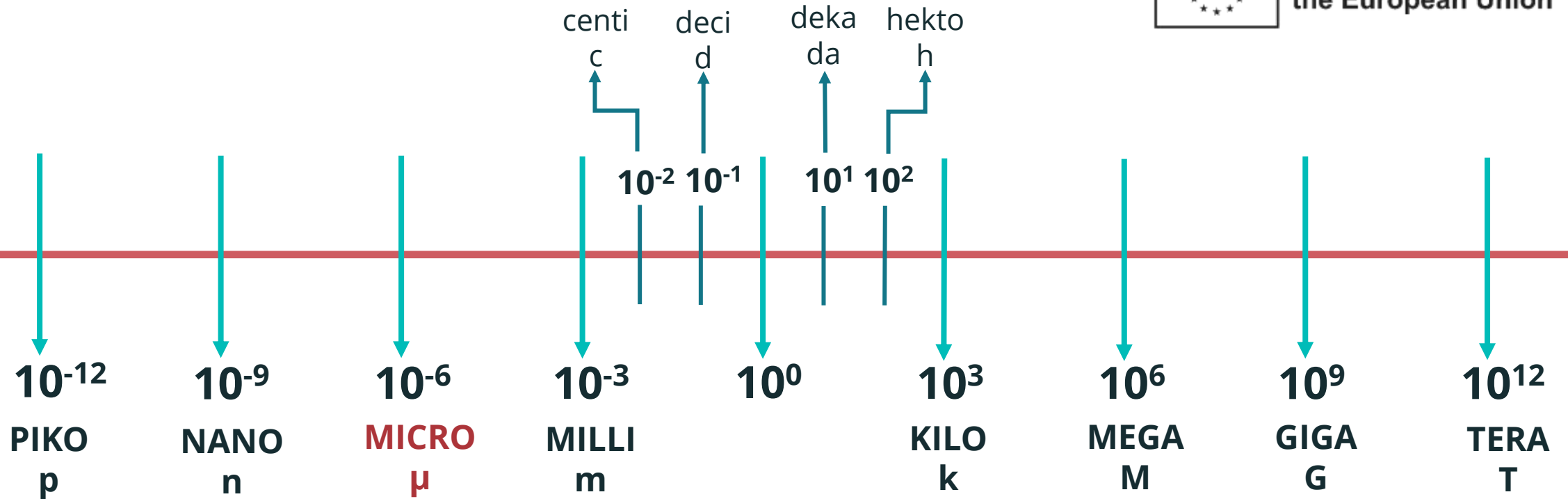
Source: *PlasticsEurope*

MACRO vs. MICRO

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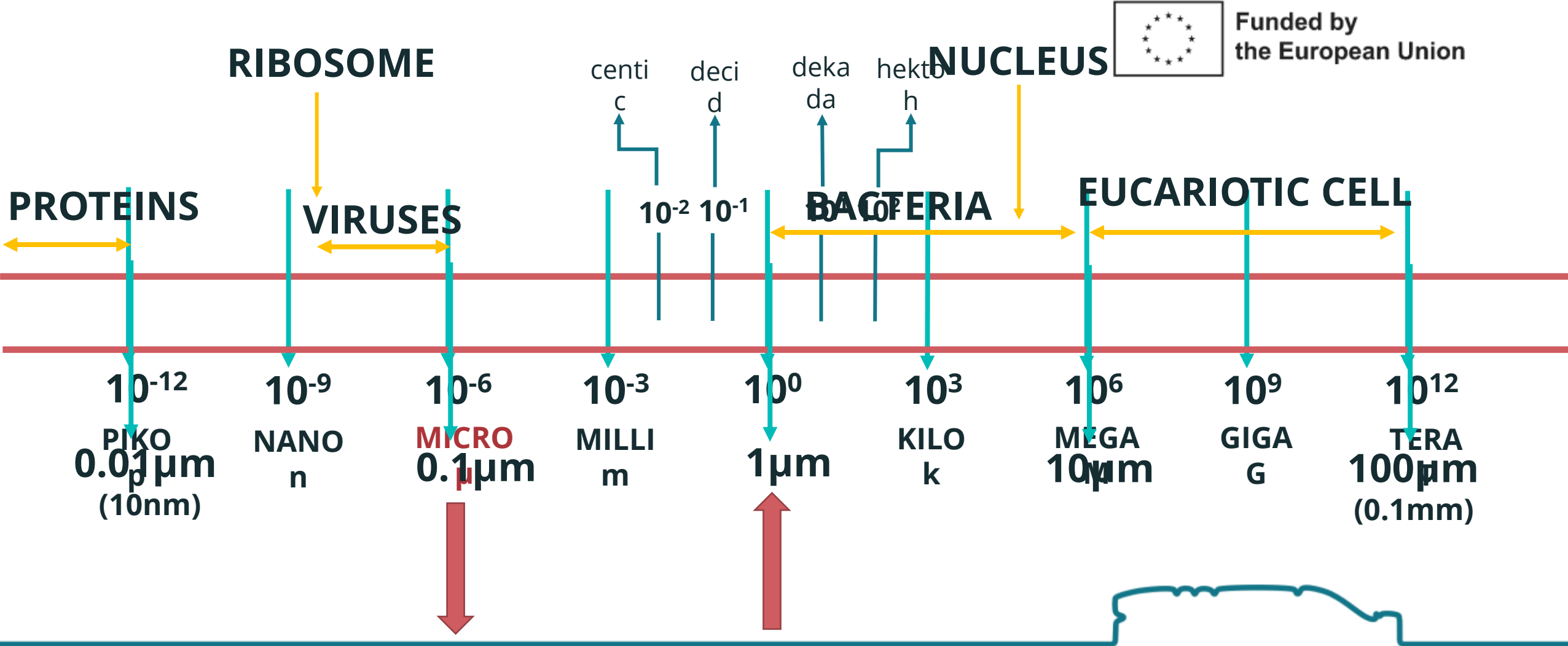


MACRO vs. MICRO

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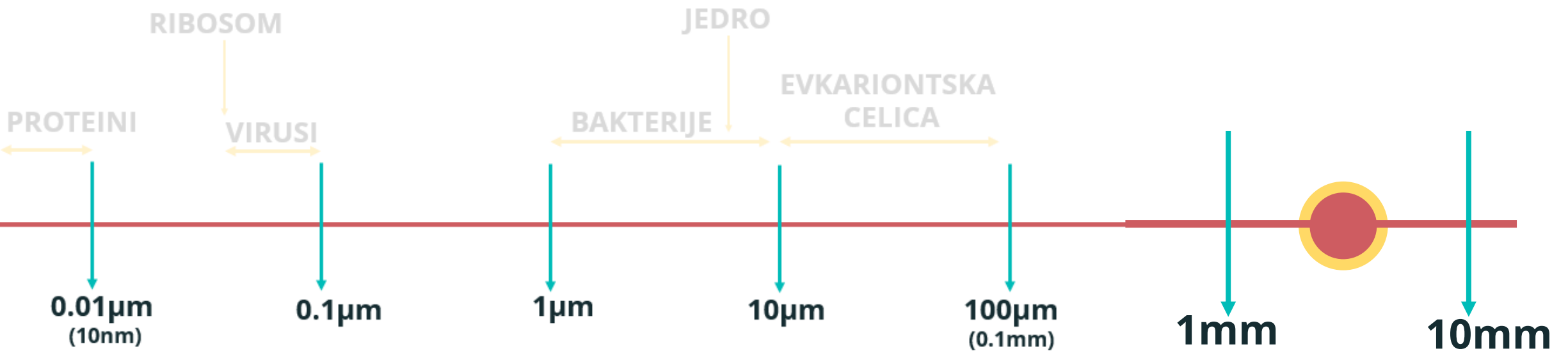


MICROPLASTICS (MP)

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= solid plastic particles typically smaller than 5mm (ECHA)



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What do you first think of when you say
MICROPLASTIC? (up to 3 words)

www.menti.com - use the code **8682 6453**



SOURCES OF MP

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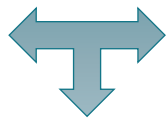


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PRIMARY MP

Personal care products and cosmetics (MICROBEADS)

NURDLES
Small plastic pellets, fibers, granules used in industry

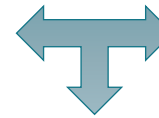


Waste water
Sewage sludge
Abrasions/ use / maintenance

SECONDARY MP

PRODUCTION OF LARGER (MACRO)PLASTIC PRODUCTS

Macroplastics products
... ..



WASTE

physical-chemical processes

microplastics



ORIGINS ... and the path to the oceans

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ESTIMATION:
15 - 31 % of all plastics in oceans could come from primary sources

MP SOURCES – Germany

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	SOURCE = USAGE, ABRASIONS	CONTENT (g/person/year)
1	Vehicles tyres (88 % from car tyres)	1230 g
2	Plastics in road surfaces	230 g
3	Plastic pellets	180 g
4	Waste disposal	165 g
5	Asphalt sport pitches and artificial grass	130 g
6	Construction sites	120 g
7	Shoe soles	110 g
8	Plastic packaging	100 g
9	Road pavement markings	90 g
10	Plastic textiles (fleeces etc.) during washing	80 g



GERMANY 2018:

> 70 sources of primary MP
> 2435 g/person yearly

Source: UMSICHT, 2018



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Source: EU, 2020

CHALLENGES

RECOGNIZE



ASSES



REDUCE



BE AWARE



UNDERSTAND

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WEBINAR CONTENTS

- 1 • **BASICS - from macroplastics to microplastics**
- 2 • **MICROPLASTICS IN OUR HOUSEHOLDS**
- 3 • **MICROPLASTICS IN URBAN ENVIRONMENT**
- 4 • **PLASTIC WASTE**
- 5 • **ENVIRONMENTAL FATE OF MICROPLASTICS**

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Microplastics are present in various fields and applications.
Which area are you most interested in?

Rate from 1-5 (1 = minimum, 5 = maximum)

www.menti.com - use the code **1382 8234**



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THANK YOU FOR YOUR ATTENTION

CONTACT

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