

REACH/CLP impact at industrial sites: Experience / learnings so far

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BOREALIS

Keep Discovering

Content

- **Borealis in short**
- **Re-organising internally**
- **Chemical evaluations**
- **Expectations / Summary**

Borealis is acting worldwide

Borealis Group Locations

Customer Service Centres /

Representative Offices: Austria, Brazil, Belgium, Finland, Romania, Russia, Turkey, UAE, United States

Production Plants: **Austria (x2), Belgium (x4), Brazil, France(x3), Finland, Germany(x2), Italy, Sweden, The Netherlands,** United States

Innovation Centres: Austria, Finland, Sweden

Head Office: Austria

Borealis L.A.T Locations

Austria, Bulgaria, Croatia, Czech Republic, France, Hungary, Romania, Serbia, Slovakia

Borouge Locations

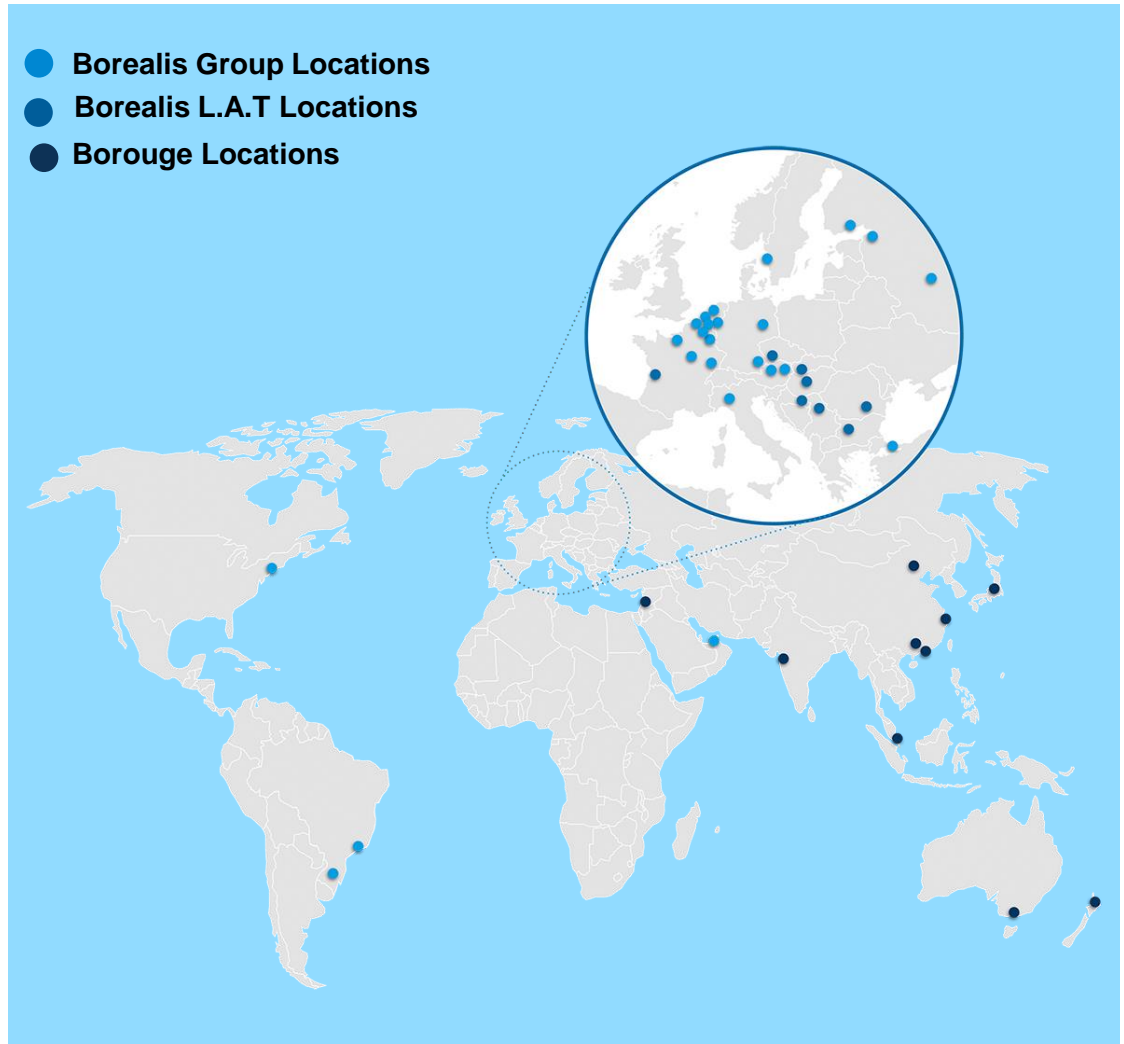
Sales Offices / Representative Offices:

Abu Dhabi (UAE), Auckland, Beijing, Beirut, Guangzhou, Hong Kong, Melbourne, Mumbai, Shanghai, Singapore, Tokyo

Production Plants: Abu Dhabi (UAE); China

Logistics Hubs: Abu Dhabi (UAE), China, Singapore

Head Offices: Abu Dhabi (UAE), Singapore



Borealis provides pioneering solutions in three business areas



Borealis Polyolefins

Borealis works closely with its customers and industry partners to provide innovative and value-creating plastics solutions that increase end-product safety, reduce weight, lower costs and enable integration of parts.



Borealis Base Chemicals

Borealis continues to develop its profitable Base Chemicals business building on unique feedstock technology, logistics and integration strengths.



Borealis Fertilizers

Borealis supplies five million tonnes of fertilizers and technical nitrogen products per year via its Borealis L.A.T. distribution network.

Borealis is the leading fertilizer company in Central and South East Europe with strong ambitions for further growth.

Borealis in Finland / Borealis Polymers Oy

Porvoo site

- Fully integrated **petrochemical complex** comprising of five plants: a cracker for the production of **olefins**, a **phenol and aromatics** plant, two plants for **PE**, one plant for **PP** and one **compounding** unit
- Main **PO applications** are **pipe** products **steel pipe coating**, **advanced packaging** and **cable products**
- An annual production capacity of polyolefins is over **600.000 tonnes**.
- **Innovation Centre** for catalyst and process research, features catalyst scale-up facilities and fully integrated Borstar® PE and PP semi-commercial pilot plant lines.
- Home to **950 employees**
- **REACH registrations: 15 (2010)**
- **A company with > 40 y safety culture dealing with hazardous chemicals under close control of national authorities**



Defining the regulatory obligations

➤ Borealis has various REACH & CLP roles:

Borealis Group

Borealis Polymers Oy

A producer of substances
A producer of mixtures
An importer of substances
An importer of mixtures
A down stream user
CL notifier
PPORD notifier
An OR for non EU manufacturing

A producer of substances
A producer of mixtures

A down stream user
CL notifier

➤ Additionally, Borealis needs to comply with numerous environmental and occupational health directives e.g. IED, CAD, CMD, SEVESO...

Borealis as downstream user

Borealis Group

- Raw materials altogether around 1300
- Ca 25 % out of them (300) are classified as hazardous
 - Phys-chem, human health or environment

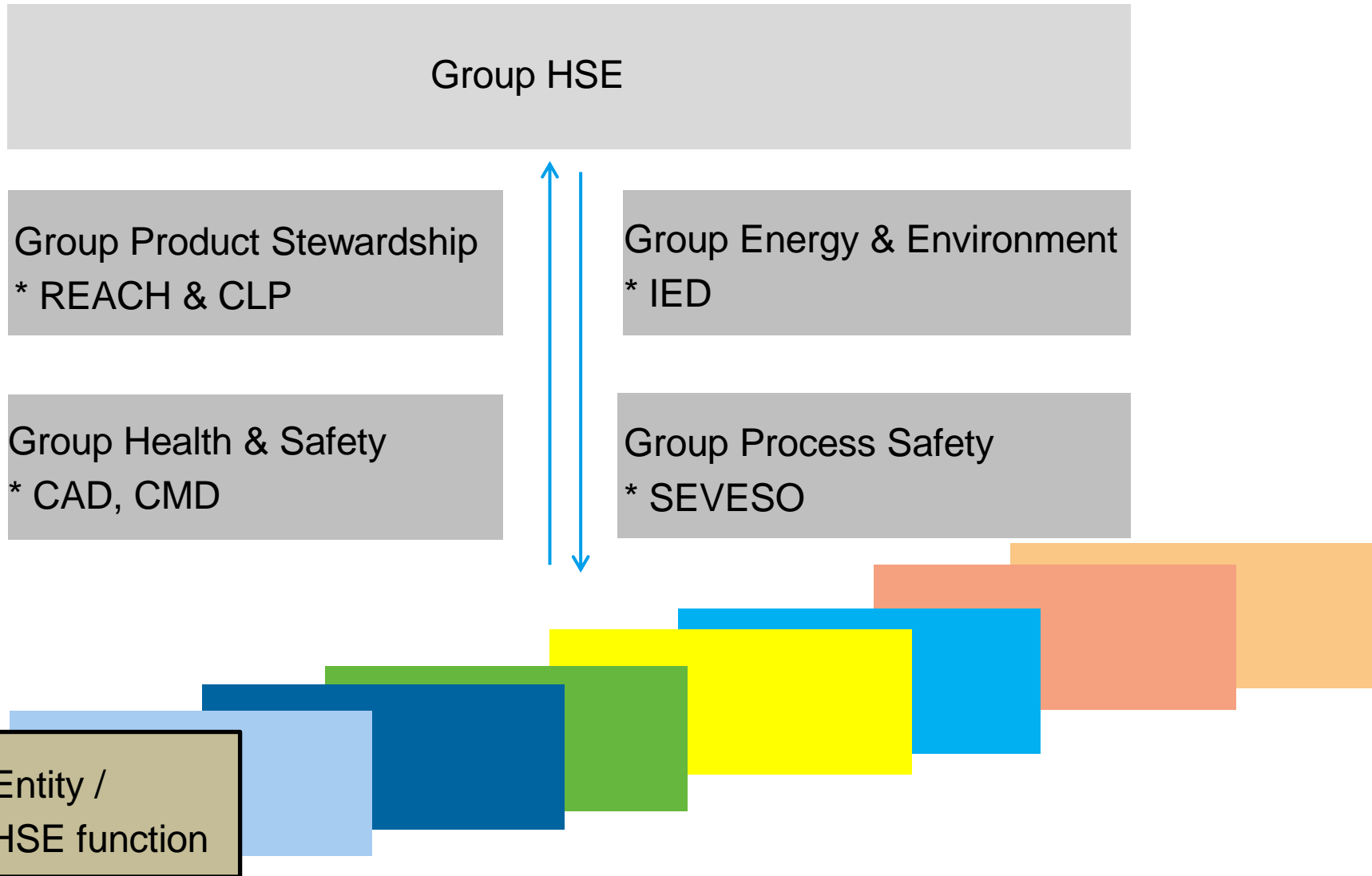
E.g. individual legal entity – Borealis Polymers Oy

- Incoming raw materials for production altogether around 200
 - Typically several suppliers for each individual raw material (x 2-3)
- Ca 30 % out of them (70) are classified as hazardous
 - Phys-chem, human health or environment
- So far 25 eSDSes received from suppliers

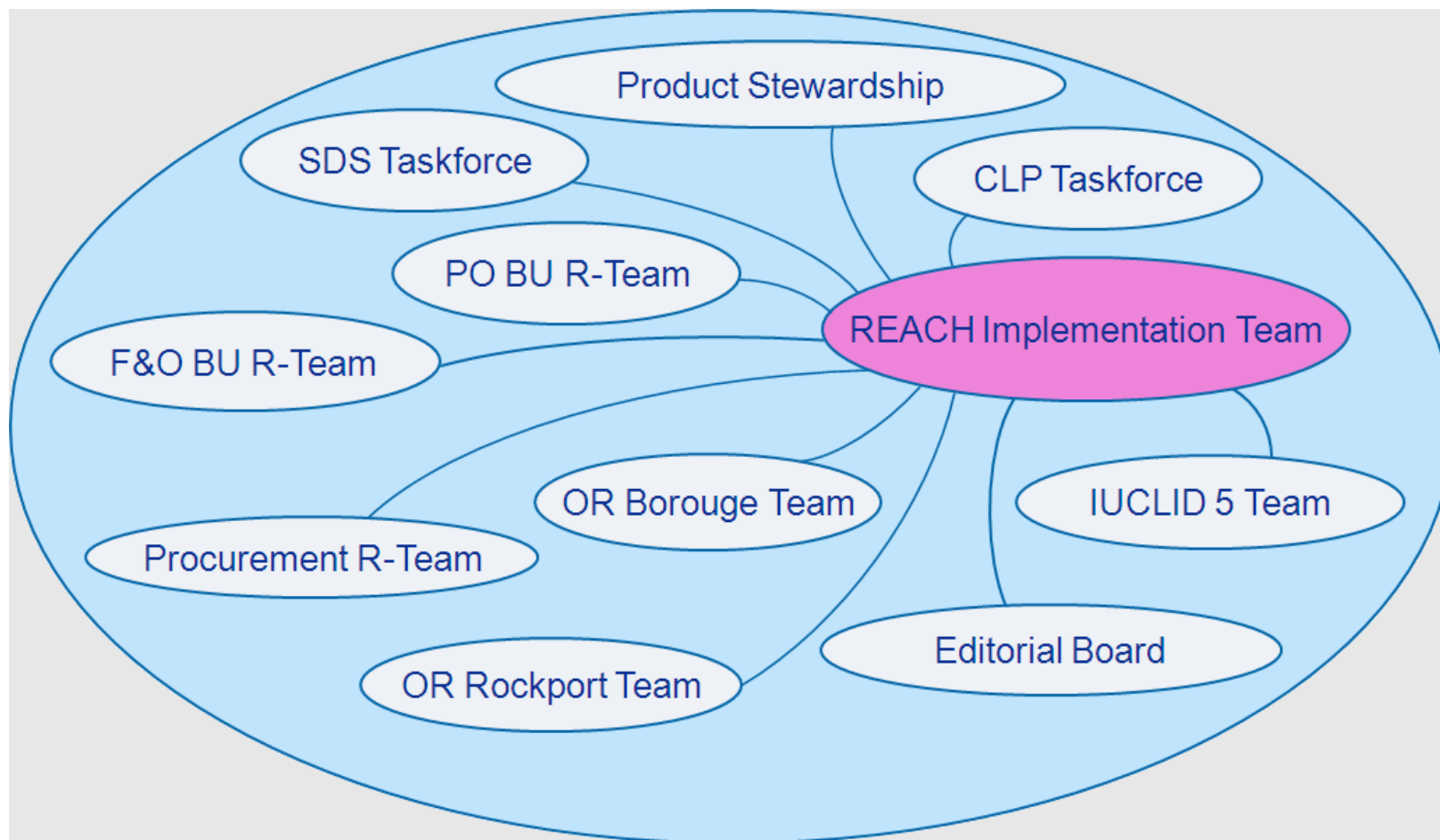
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Linking REACH & CLP to the HSE function



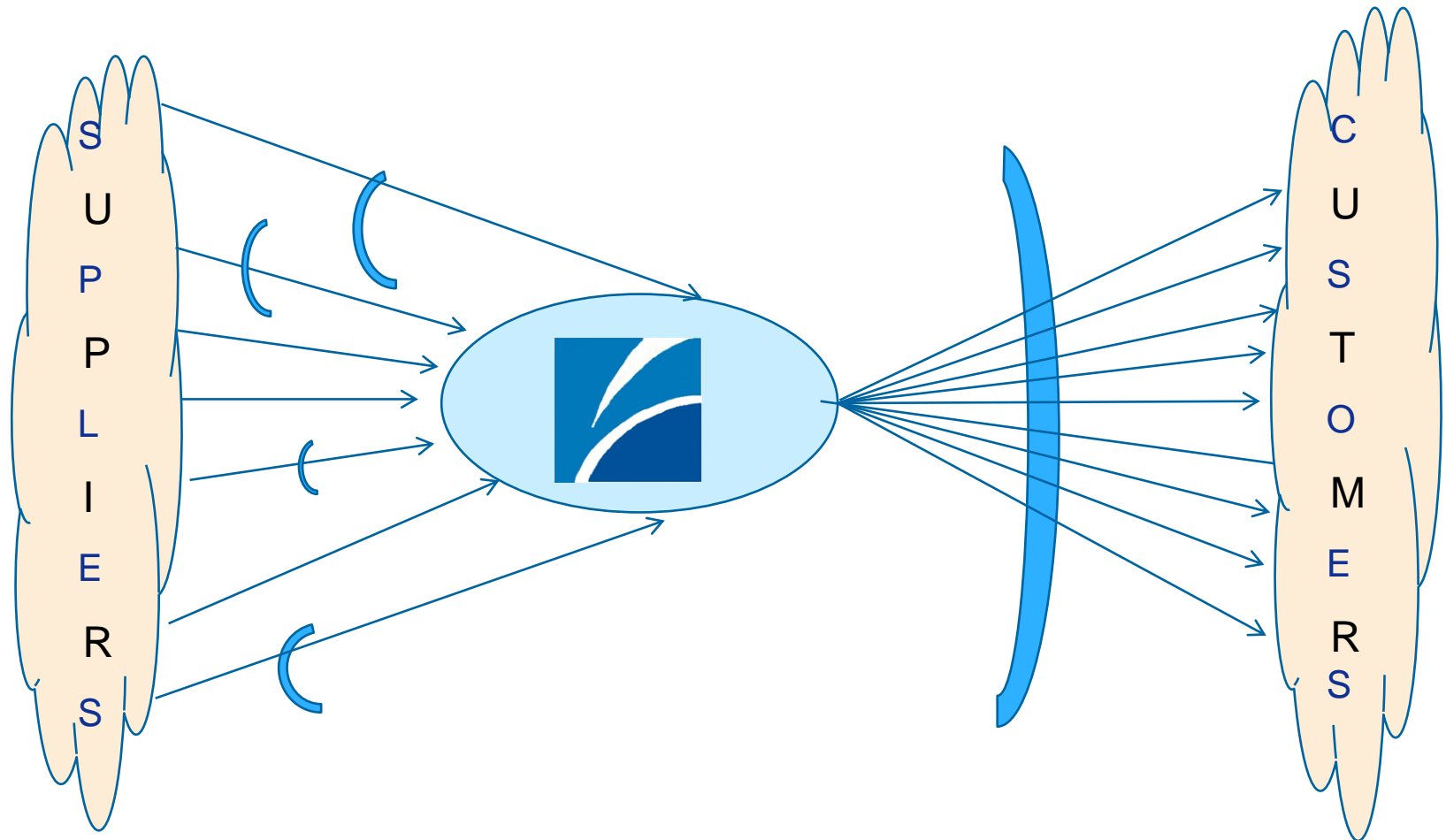
Effect in organisation: how is was yesterday



Effect in organisation: today more order and clarity

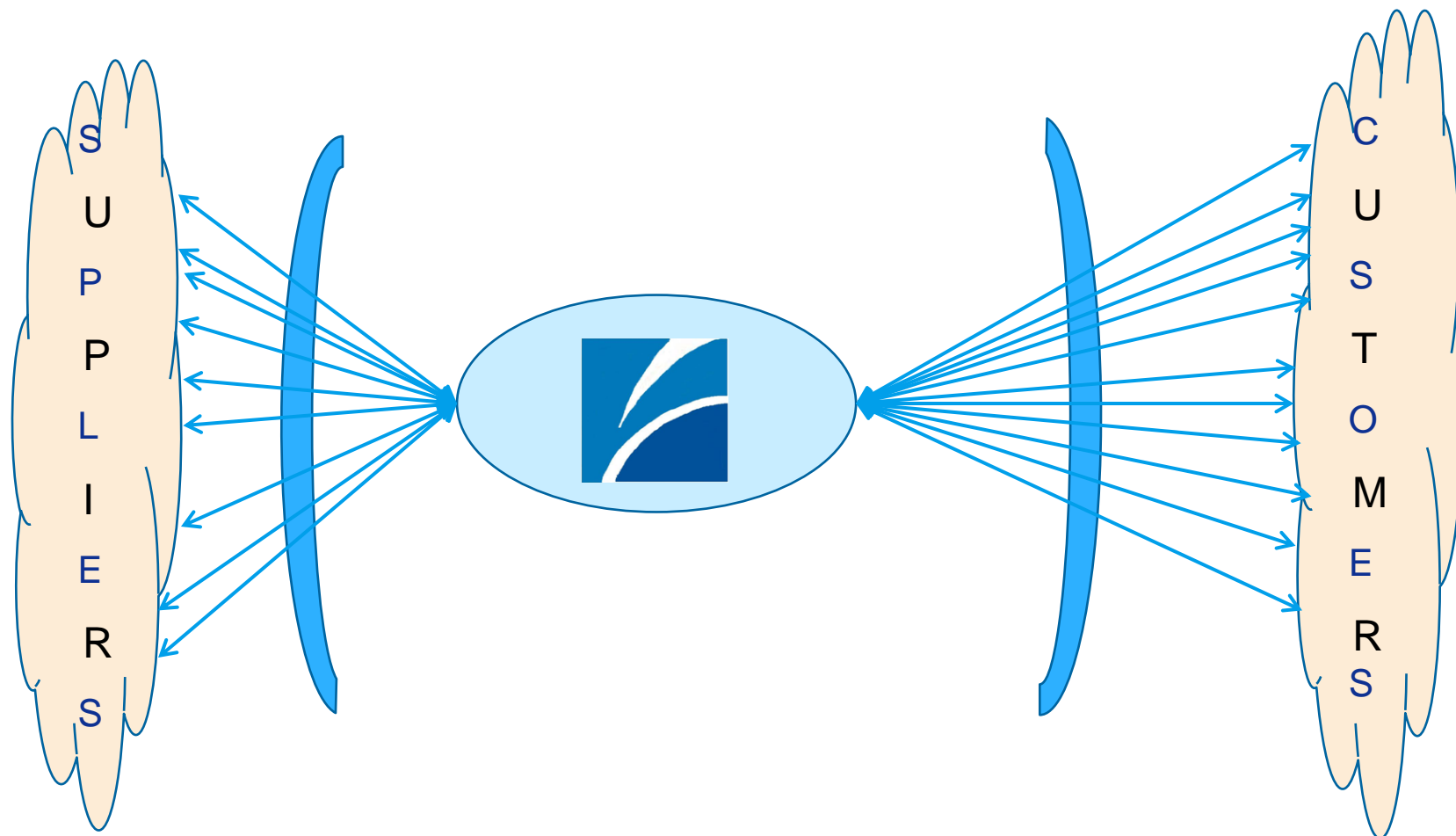


Raw Material Owner Organisation - yesterday



Fragmented and inadequate communication particularly regarding incoming chemicals

Raw Material Owner Organisation - today



Robust communication throughout the chemical value chain
in both directions

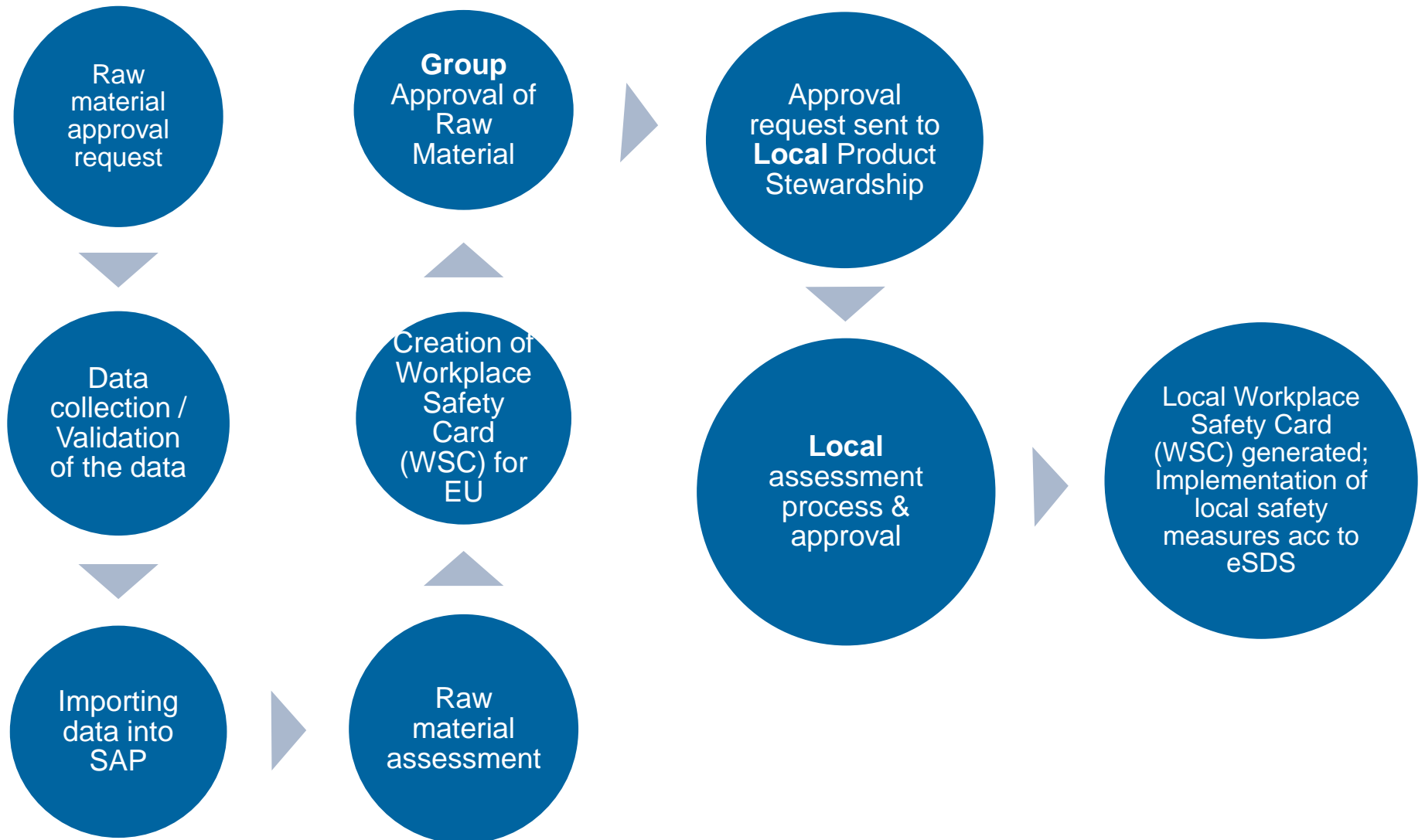
Preparing for substitutions – proactive approach

1. Need to balance regulatory and value chain demands and expectations
2. Strategy on "How to deal with hazardous substances in Borealis" launched
3. Three step process
 - a. Group Product Stewardship evaluation
 - Filtering Borealis relevant substances and ranking their risk profile
 - b. Multi-disciplinary Product Stewardship Board
 - Update of Borealis Black & Grey list
 - Identification of the most high risk substances
 - c. Concerned organisation
 - Final decision on mitigation actions

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Approval process of incoming chemicals



eSDS evaluation

1. Identification of relevant exposure scenario of the SDS
2. Comparison and validation of PROC and ERC codes
3. Comparison of operational conditions in plant / production line (PROC) and/or location (ERC) with information in SDS under consideration of mentioned RMMs

1. Check if the product is **classified as health hazard**
2. Selection of all **relevant PROCs** (Table 1b) **listed in the SDS** (drop-down list) only if classified for **relevant Exposure Scenario(s)**
3. Selection of all **own PROCs** (drop-down list); if necessary short explanation can be added
4. If own PROC is not included in SDS (Result: NO), check if PROC is covered by other PROC (link) and add result manually (drop-down list) in this column

health hazards (H-statements H3xx) Yes

Table 1b: Process Categories (PROCs)

[Explanation](#)

	Supplier Uses (section 1.2 of the SDS and in the ES)	own Uses (PROC-code)	own Uses (short explanation)	Result	PROC within PROC
11	Titel of selected ES				
12	Herstellung von Stoffen	PROC1	PROC1	synthesis	OK
13		PROC2	PROC8b	unloading, transfer in pipe to storage tank and reactor	OK
14		PROC3	PROC1	sampling	OK
15		PROC4	PROC15	lab analyses	OK
16		PROC8a			
17		PROC8b			
18		PROC15			
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A	B	C	D	E	F	G	H	I	J	
1	1. Selection of conditions in column "eSDS" and "Own Usage" (drop-down list)									
2	2. "Safe use" or "Use NOT safe" will be calculated automatically						Result:	All uses are safe		
3										
4	Table 2b: Conditions on Workplace			ERF = Exposure Reductionfactors						
17	PROC (from Uses)	Exposure-modifier	eSDS	ERF	Own Usage	ERF				
18	PROC8b	Duration	> 4 h	1	> 4 h	1				
19	unloading, transfer in pipe to storage tank and reactor	Concentration	no mixture	1	no mixture	1				
20		General Ventilation	indoor basic ventilation	1	outdoor	1,4				
21		Local Exhaustion (only indoor)	no	1	no	1				
22		Respiratory protection	no	1	no	1				
23		Respiratory protection	no	1	no	1				
24		Skin protection	chemically resistant gloves with 'basic' employee training (APF 10)	10	chemically resistant gloves with 'basic' employee training (APF 10)	10				
25		Overall Skin	Exposition Skin:	10	Safe use	10				
26	Overall Inhalation	Exposition Inhalation:	1	Safe use	1,4					
27										
28	PROC (from Uses)	Exposure-modifier	eSDS	ERF	Own Usage	ERF				
29	PROC1	Duration	> 4 h	1	< 15 min	10				
30	sampling	Concentration	no mixture	1	no mixture	1				
31		General Ventilation	indoor basic ventilation	1	outdoor	1				
32		Local Exhaustion (only indoor)	no	1	no	1				
33		Respiratory protection	no	1	no	1				
34		Respiratory protection	no	1	no	1				
35		Skin protection	chemically resistant gloves with 'basic' employee training (APF 10)	1	chemically resistant gloves with 'basic' employee training (APF 10)	1				
36		Overall Skin	Exposition Skin:	1	Safe use	10				
37	Overall Inhalation	Exposition Inhalation:	1	Safe use	10					
38										
39	PROC (from Uses)	Exposure-modifier	eSDS	ERF	Own Usage	ERF				
40	PROC15	Duration	> 4 h	1	> 4 h	1				
41		Concentration	no mixture	1	no mixture	1				
42		General Ventilation	indoor basic ventilation	1	indoor basic ventilation	1				

Borealis eSDS evaluation tool



Microsoft Excel
Worksheet

http://newsletter.echa.europa.eu/home/-/newsletter/entry/4_13_what-to-do-when-receiving-an-extended-safety-data-sheet-

Level of detail vs "readable form" – Example Phenol

- Quality of SDSs has improved – but also demands have increased a lot
 - Exposure Scenarios not always user friendly
 - Still missing data...

- eSDS needs to be translated into a "clear and concise" document

– eSDS, 55 pages



– WSC, 2 pages



– WSC, 1 page



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Expectations from enforcement authorities

1. Balanced, transparent and equal enforcement activities are welcome
 - a. Support REACH to fulfil it's aims in the end of the day
 - b. Mutual understanding needed between industry and authority

2. Both industry and authorities are still on learning curve of this very complex legislation

3. "Base level" communication
 - a. REACH language & terminology is difficult particularly for SMEs
 - b. REACH information difficult to adopt; DNEL, PNEC still seen as strange

Summary and conclusions

SO FAR IN BOREALIS...

Not much utilisation of REACH & CLP information at production sites, but...

1. organisational improvements in company's internal workflows
2. value chain communication / dialogue has increased regarding chemical safety
3. quality of SDSs has improved overall, but poor quality SDSs still exist too
4. links to occupational health and environment directives still seen as rather weak

NEXT STEPS...

Potential for utilisation of new data exists, but the “readiness” is not yet here

Thank you

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