

A LEPLAY, 21st october 10, Zurich

Corporate Policy on Product-Stewardship & Substitution

Case Study



Corporate Policy on Product-Stewardship & Substitution: case study

- Corporate Policy for CMR tracking and substitution
- CMR marketed products: focus
- Product-Stewardship issues and CMR early tracking in Innovation and development projects
- An example of substitution of CMR and/or high volatile solvent:
Rhodiasolv® IRIS
- Conclusion

1. Corporate Policy for CMR* tracking and substitution

- Management Book Red Lines
- Rhodia's definition of a CMR substance
- Scope of application

** Substances classified as Carcinogenic, Mutagenic or toxic for Reproduction*

CMR: a Management Book Red Line

- The red line relating to CMR substances is mandatory for all Group entities.

A thorough review must be conducted within three years of the identification of a CMR substance, with the aim of eliminating the substance or controlling the risk if the substance cannot be eliminated.

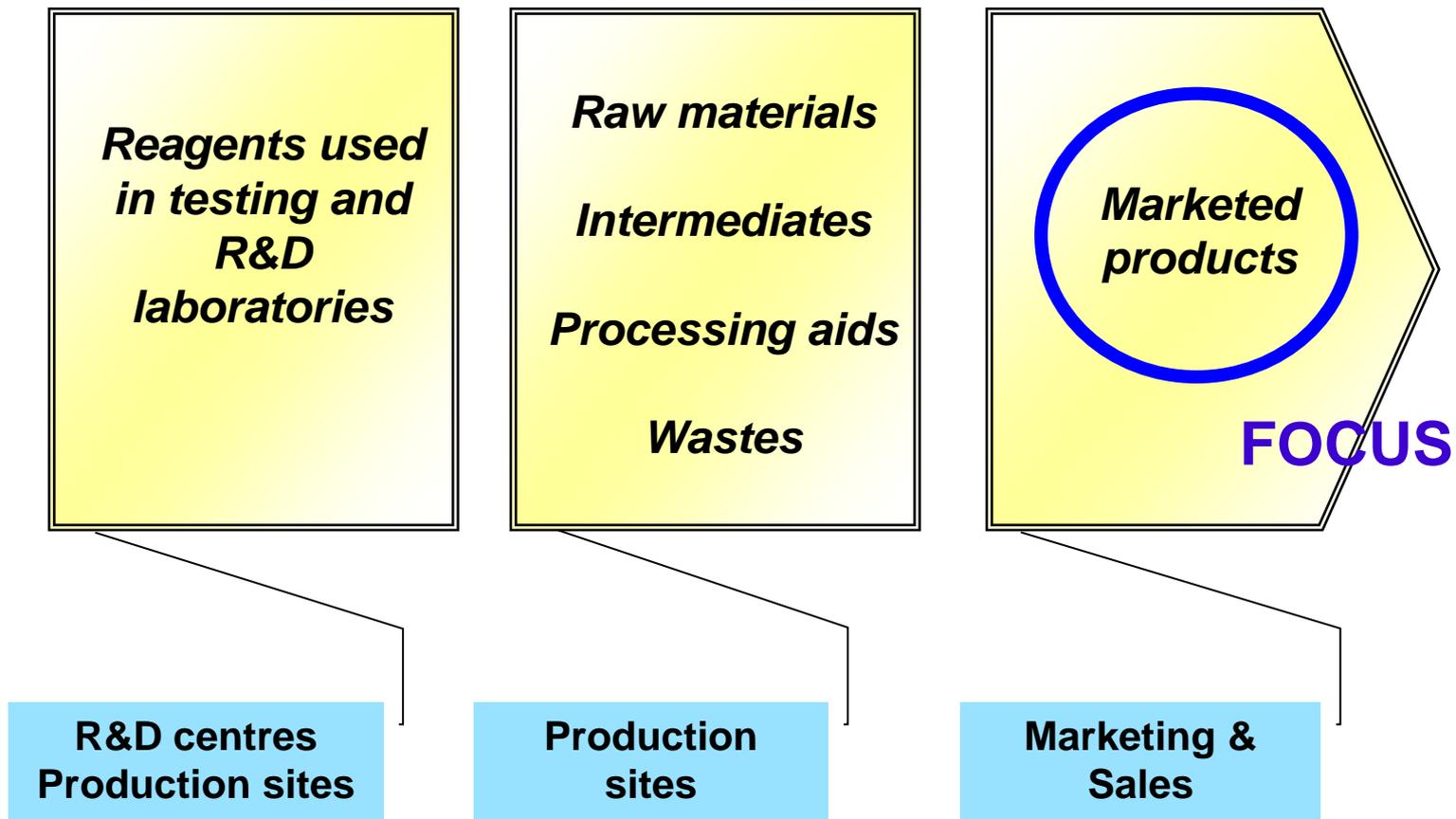
The CMR red line means applying the principle which operates in Europe under the REACH regulations which requires authorization and seeking to identify substitutes for **CMR SVHCs** (substances of very high concern) on a world-wide basis .

Rhodia's definition of a CMR substance

Step 1: Definition of criteria which can be adopted by a Group whose products are used throughout the world.

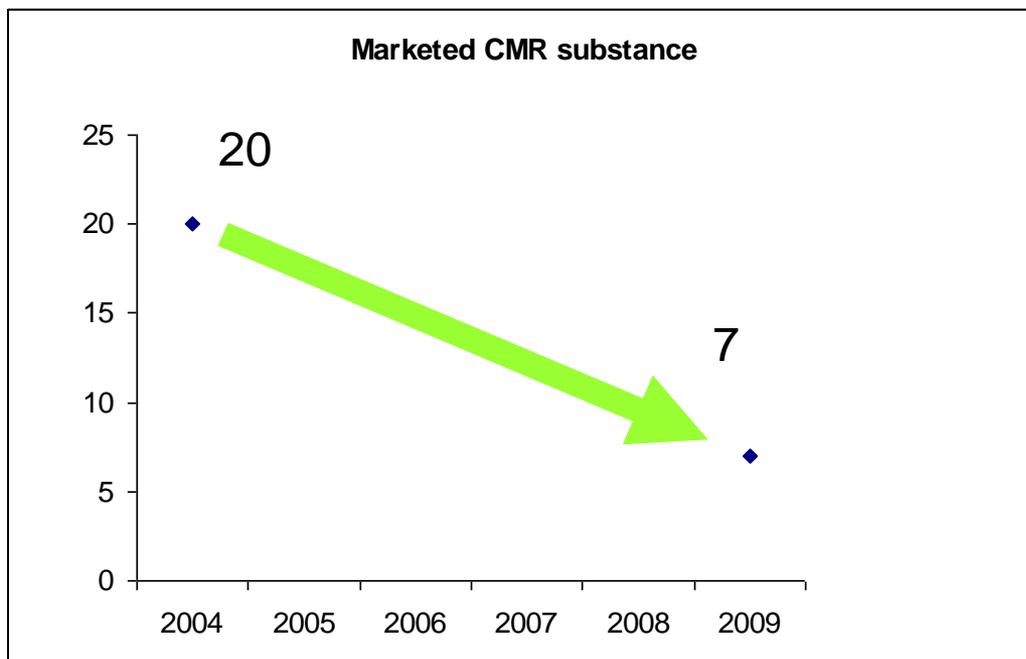
- **Diversity of regulations in force in the countries where the group operates
=> need for a unique CMR definition**
- **Establish definition of a CMR at group level:**
 - Substance which meets the criteria for classification as a **category 1 or 2 CMR** substance as defined in **Annex VI of Directive 67/548/EEC** (including substances which are self-classified by Rhodia or by another supplier).,
 - Substance which meets the criteria for classification as a **Group 1** carcinogen (carcinogenic for humans) or **Group 2A** carcinogen (probably carcinogenic for humans) according to the **IARC** classification system
 - Substance or preparation containing one or more substances classed as **CMR** applying the criteria indicated above at a **concentration equal to or greater than the concentration limits specified in the regulations.**

Possible presence of CMR substances in value chain



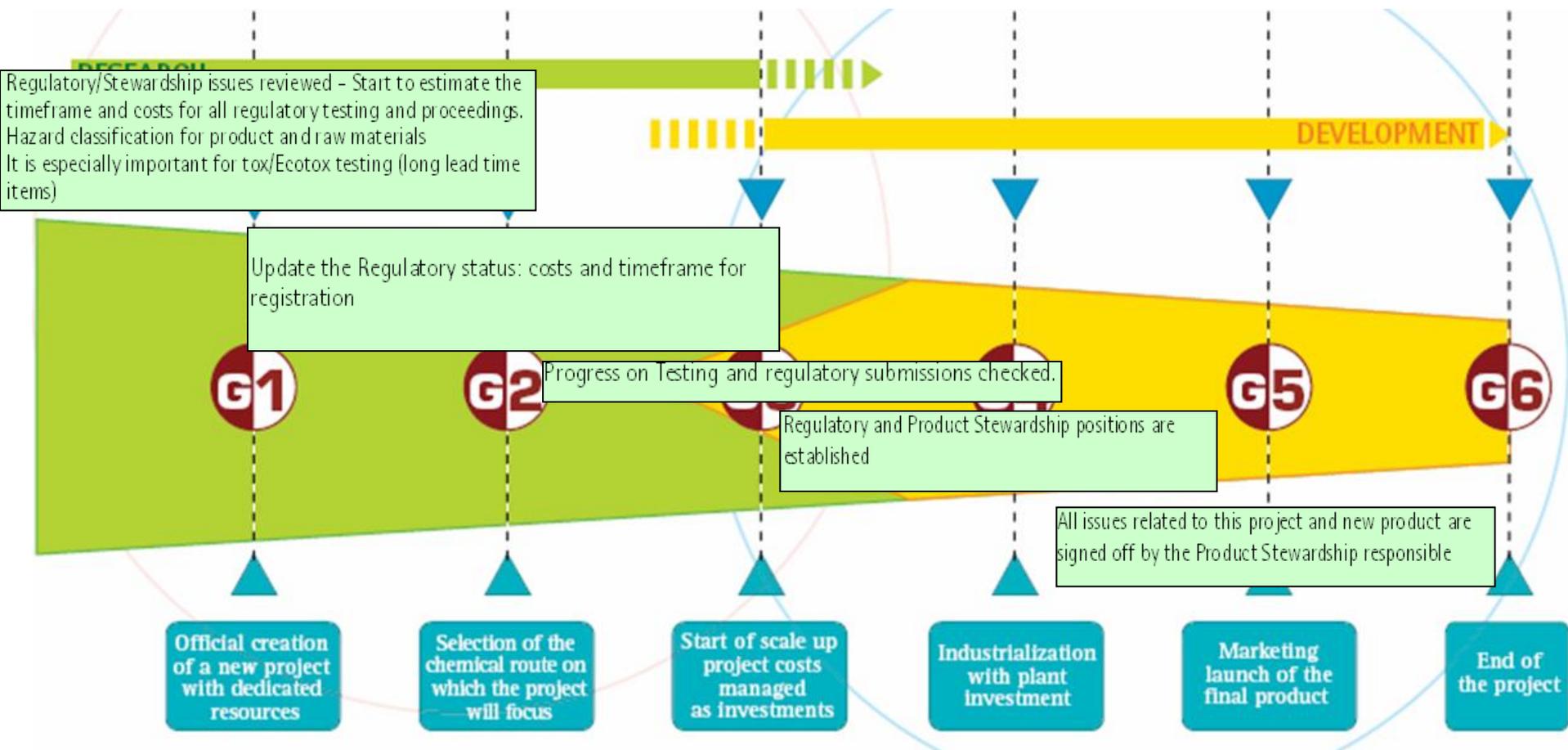
2. CMR marketed products: Focus

- Since 2005 an exhaustive inventory of all CMR Products marketed Worldwide enabled to reduce drastically the number of marketed CMR substances.



- For each one of the CMR products still marketed, a written substitution dossier is maintained in order to demonstrate absence of reasonable alternative for substitution and in order to apply strict conditions of risk control for manufacturing and customers.

3. Product-Stewardship issues and CMR early tracking in Innovation and development projects



4. An example of substitution of CMR and/or high volatile solvent: Rhodiasolv® IRIS

- **Develop innovative solvents, compliant with new safety and environmental trends**
- **Rhodiasolv® IRIS may replace toxic, carcinogenic or volatile solvents (NMP, DCM, Acetone)**

Develop innovative solvents, compliant with new safety and environmental trends

- Rhodiasolv® IRIS is a new solvent allowing developments **in compliance with new regulations for safety, health and environment**
 - Rhodiasolv® IRIS is biodegradable, non mutagenic, non toxic, non flammable and low volatile;
 - Registered in Europe, US, Korea, Japan and Australia;
 - Start of the sales allowed in Canada and China, full registration on-going.
- Due to their physico-chemical properties and low environmental impact, Diester solvent are **excellent alternatives to various traditional solvents**
 - Designed in 2006, Rhodiasolv® IRIS may replace toxic, carcinogenic and volatiles solvent (N-Methyl-Pyrrolidone, Di-Chloro-Methane, Acetone) in a wide range of applications;
 - Rhodiasolv® IRIS opens the range of applications for dibasic ester solvents.
- Rhodia developed Rhodiasolv® IRIS, a new solvent **responding to the strong demand for Eco-friendly solvent,**
 - Rhodia is the 2nd worldwide producer of « Dibasic esters »;
 - Rhodiasolv® IRIS was launched at end of 2008 in several market: paint and coating, industrial cleaning, foundry resins, paint stripping;

Rhodiasolv® IRIS may replace toxic, carcinogenic or volatile solvents (NMP, DCM, Acetone)

- **Diesters are alternatives :**

- biodegradable
- non toxic
- non mutagenic
- non flammable
- low VOC emission (1999/13/EC)

- **Diesters may replace wide range of solvent due to their low environmental impact:**

- Chlorinated
 - Dichloromethane, perchloroethylene,
- Ketone
 - Acetone, MEK, MBK, Isophorone
- Aromatics
 - Xylene, Toluene,
- Glycols ethers (MEG), DMSO
- Pyrrolidone, Butyrolactone

Solvent	Flammability (Flash point)	Evaporation lose	Health and safety
Rhodiasolv IRIS Diester	Non flammable	Very low	Non toxic Non irritant
Acetone	Flammable	Very high	Flammable
DCM	Non flammable	Very high	Toxic Pot. Carc.
NMP	86°C	Low	S2 2009: Reprotoxic

5. Conclusion

- **First steps of Rhodia's Product-Stewardship Policy were initiated in the late 90's.**
- **Adapted knowledge (compositions and hazard profiles) of ingredients was a pre requisite**
- **Development of a Corporate Policy on Product-Stewardship & Substitution is a long-term path.**
- **Chemistry is our world....
...Responsibility is our way**

Chemistry is our world



- International chemical company with leading position in all core activities
- Well-balanced presence worldwide
- Wide variety of markets served

Responsibility is our way

- Group which combines innovation and responsibility in business activities
- RhodiaWay[®] - a framework of commitments deployed throughout the Group
- Performance recognized by Rhodia's inclusion in the

