

12<sup>th</sup> UIC  
Sustainability Conference



# Recyclability and Recoverability Calculation Method for Rolling Stock

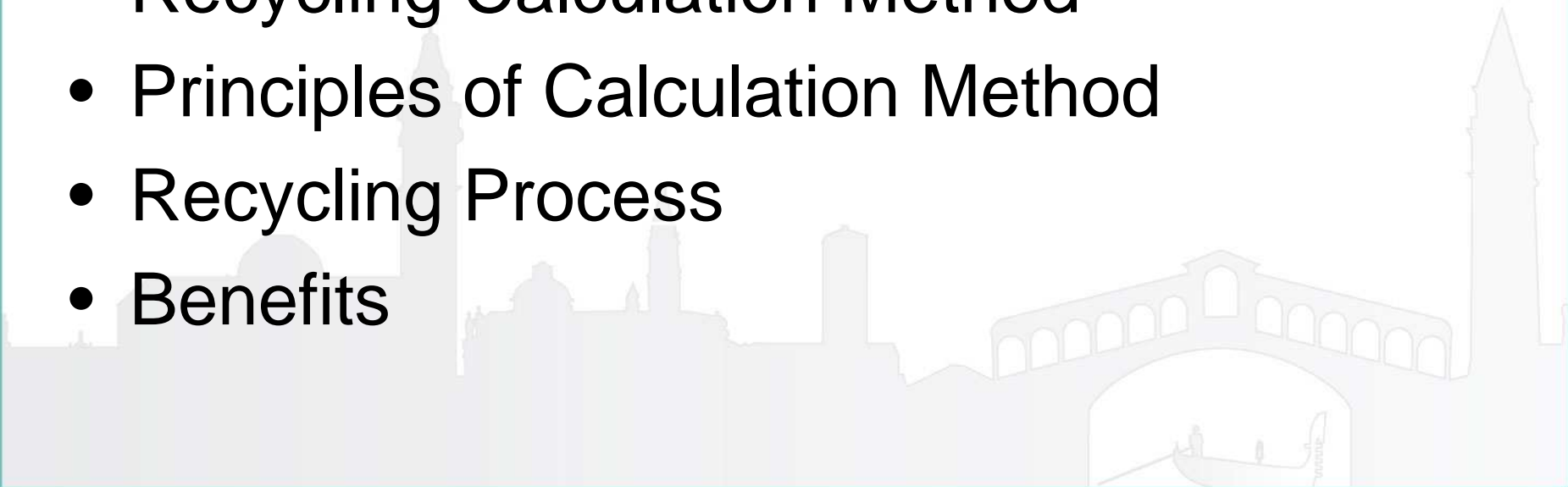
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Speaker Life Cycle Assessment Topical Group  
Siemens Rail Systems



# Content



- Introduction – UNIFE Topical Groups
- Current Recycling Activities
- Goal and Scope of Rolling Stock Recycling Calculation Method
- Principles of Calculation Method
- Recycling Process
- Benefits





## UNIFE represents the European Rail (Supply) Industry

- Based in Brussels since 1992
- 22 permanent employees
- A trusted partner of the **European institutions** in all matters related to rail and transport
- **Full members: 81** of the largest and medium-sized companies in the rail supply sector
- **Associated members: 18** National Associations, representing almost 1,000 suppliers of railway equipment + EFRTC and UNISIG
- UNIFE members have an **80% market share in Europe** and supply more than **50% of the worldwide production** of rail equipment and services.



# Who is the Sustainable Transport Committee?

- The UNIFE Sustainable Transport Committee acts as a coordinator for all the environmental matters and provides a platform for consensus-building to formulate common positions.
- Fields of action related to Ecodesign of Railway Systems.
- There are 3 technical groups under the leadership of the Sustainable Transport Committee:
  - Chemical Risk topical group
  - Energy Efficiency topical group
  - **Life Cycle Assessment topical group**
    - Product Category Rules for Environmental Product Declarations (EPD Type III)
    - Recycling
    - Life Cycle Assessment according ISO 14040



# Why Recycling?



Recycling is a comprehensive issue and analyzed since 1985 especially for cars. Following several mandatory obligations, standards and customers requirements needs to be fulfilled:

- **Automotive:**

- EU Legislation for End of Life Vehicles (ELV Directive)
- 95 % legal bound recoverability rate by the end of 2015
- Well organized take back system
- Calculation standardized related to ISO 22628
- Recycling orientated product design (e.g VDI 2243)

- **Electrical and Electronic Equipment (EEE):**

- IEC/TS 62635 Ed.1.0: End of life recyclability calculation for EEE
- IEC/TS 62650 Ed.1.0: End of Life information exchange for electro technical equipment between manufacturers and recyclers
- WEEE and RoHS

- **Shipping Industry: Hongkong Convention**

- **Railway Industry:**

- Voluntary calculation of recyclability and recoverability rates on behalf of industry

# What does a recycling calculation method for rolling stock look like?

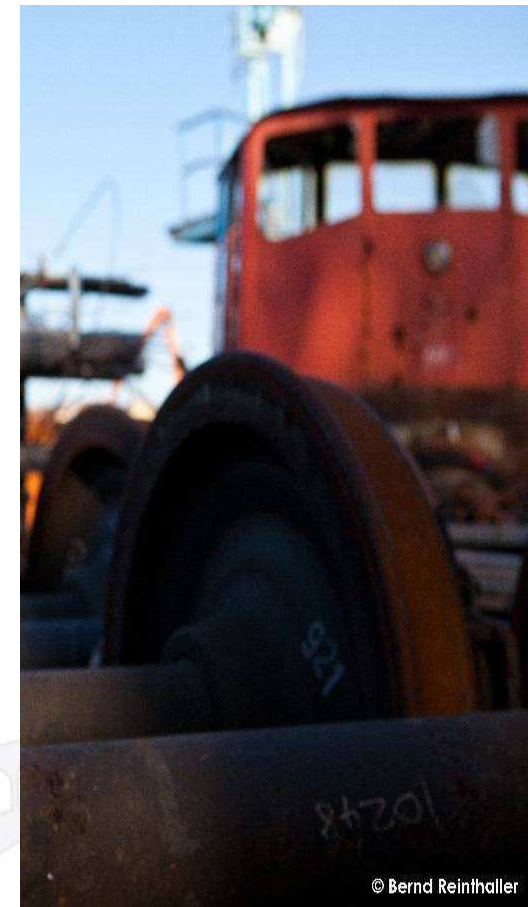


## Goal

- Development of a railway specific recycling calculation method in order to fulfill the needs of complex products like trains
- Based on terminology of automotive sector, improved for railway components
- Encourage suppliers to design railway products in a recycling friendly way (Design for Recycling)

## Scope

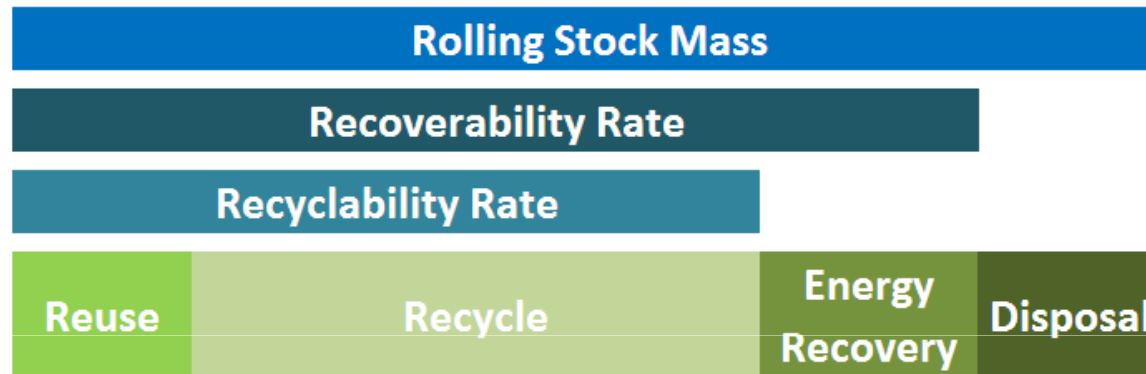
- Time scope: Rolling stock products starting from 2005 up to current technologies
- Geographical scope: Worldwide (for legislation scope Europe)
- Technology scope: European Recycling Technologies



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# Recyclability or Recoverability Rate?



Generated formula for Rolling Stock

**Recyclability** = Reuse + Recycle

**Recoverability** = Reuse + Recycle + Energy recovery

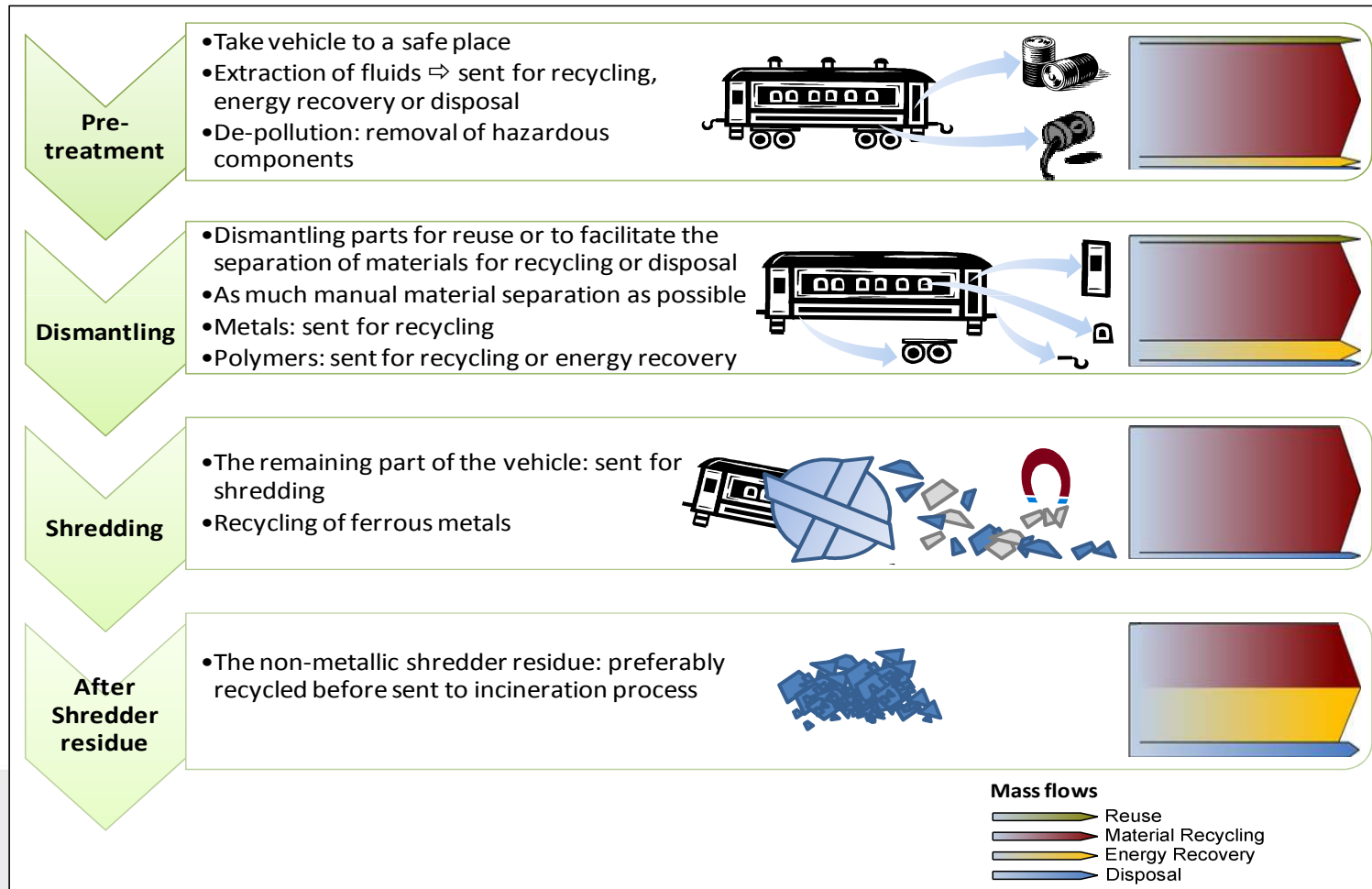
**Reuse** – Using a product without post processing

**Recycle** – Reprocessing materials e.g. Metal scrap, plastic granulate for hot molding

**Energy recovery** – Generating heat or electricity from incineration of materials

**Disposal** – Waste dedicated to landfill

# How does a Recycling Process for Rolling Stock look like?





# Benefits!

- Transparent method considering the recyclability factors of different materials
- Option for modular approach
- Predictable forecast for recycling benefits and costs
- Common industry agreement which ensures comparability
- Continuous improvement of resource efficiency





# Thank you for your attention!

## Questions ?

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