



Developments in the rail transport of dangerous goods that contribute to the sustainable use of natural resources

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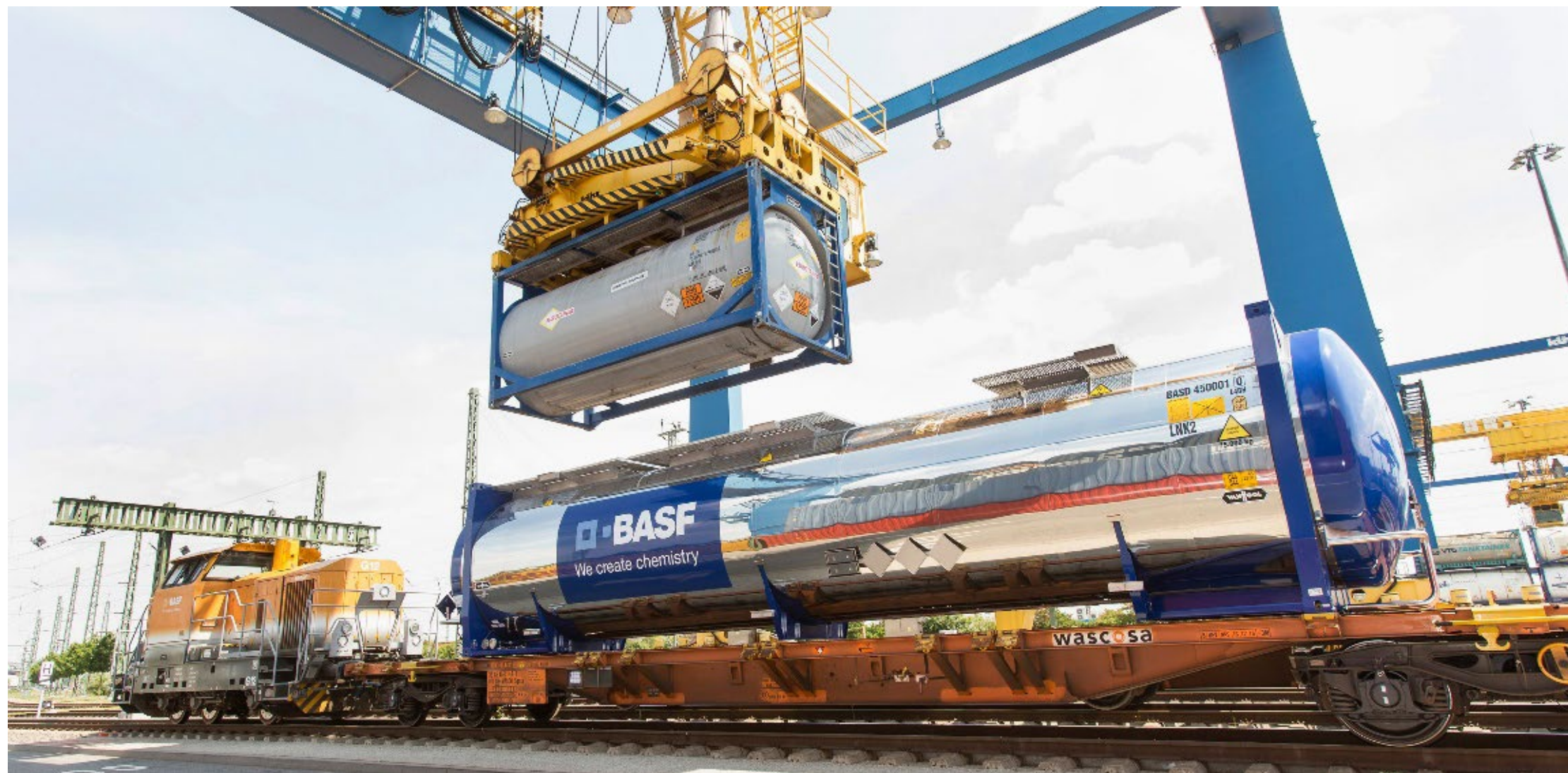
Transport of Dangerous Goods by Rail

- Shifting transport from road and air to rail makes an important contribution to sustainability and the saving of natural resources.
- Tasks to achieve these objectives:
 - Enhancing rail network capacity
 - Increasing productivity
 - Increasing quality
 - Competitive costs of rail transport, especially in single wagon traffic
- Two examples are presented that are related to the carriage of dangerous goods.



Transport of Dangerous Goods by Rail

Extra-large tank-containers





Transport of Dangerous Goods by Rail

Extra-large tank-containers

- Developed by the industry
- Advantages:
 - Double the content of a conventional ISO tank-container (double payload)
 - Flexible and quick alternative to single wagon traffic in tank-wagons, in particular in internal logistics
 - Lower unladen weight
 - Fewer carrying wagons required, as tank-container can be set down
 - Facilitation of internal logistics
 - Automated guided vehicles
 - Pile storage



Transport of Dangerous Goods by Rail

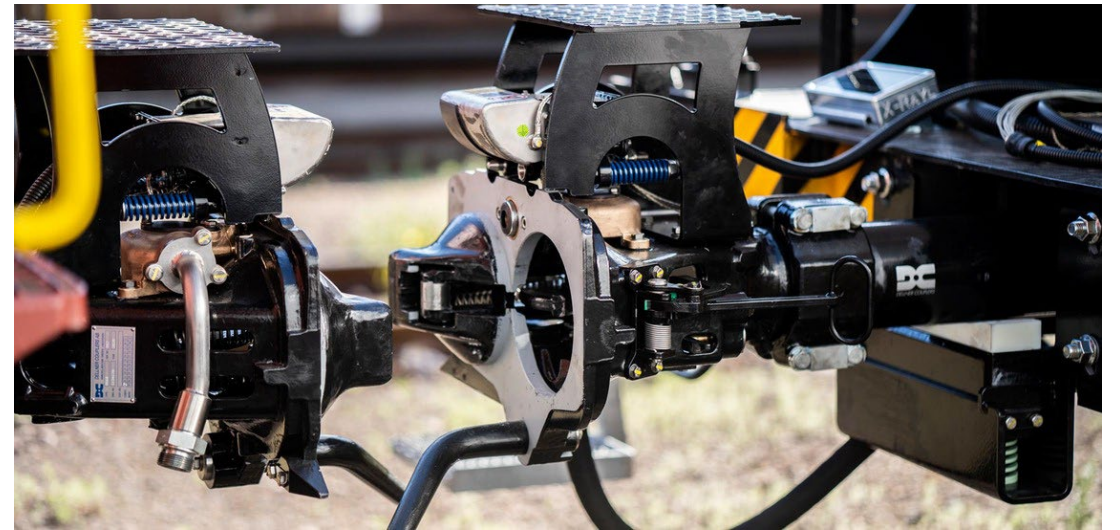
Extra-large tank-containers

- Work in the RID Committee of Experts
 - Ensuring equivalent safety to carriage in tank-wagons
 - Minimum wall thickness
 - Pressure resistance of manlids
 - Measures against liquid surge
 - Hump shunting in marshalling yards
 - Energy absorption of carrying wagons or equivalent measures
 - Protection of carrying wagons against overriding of buffers or equivalent measures
 - Minimum distance between the headstock and the shell



Transport of Dangerous Goods by Rail

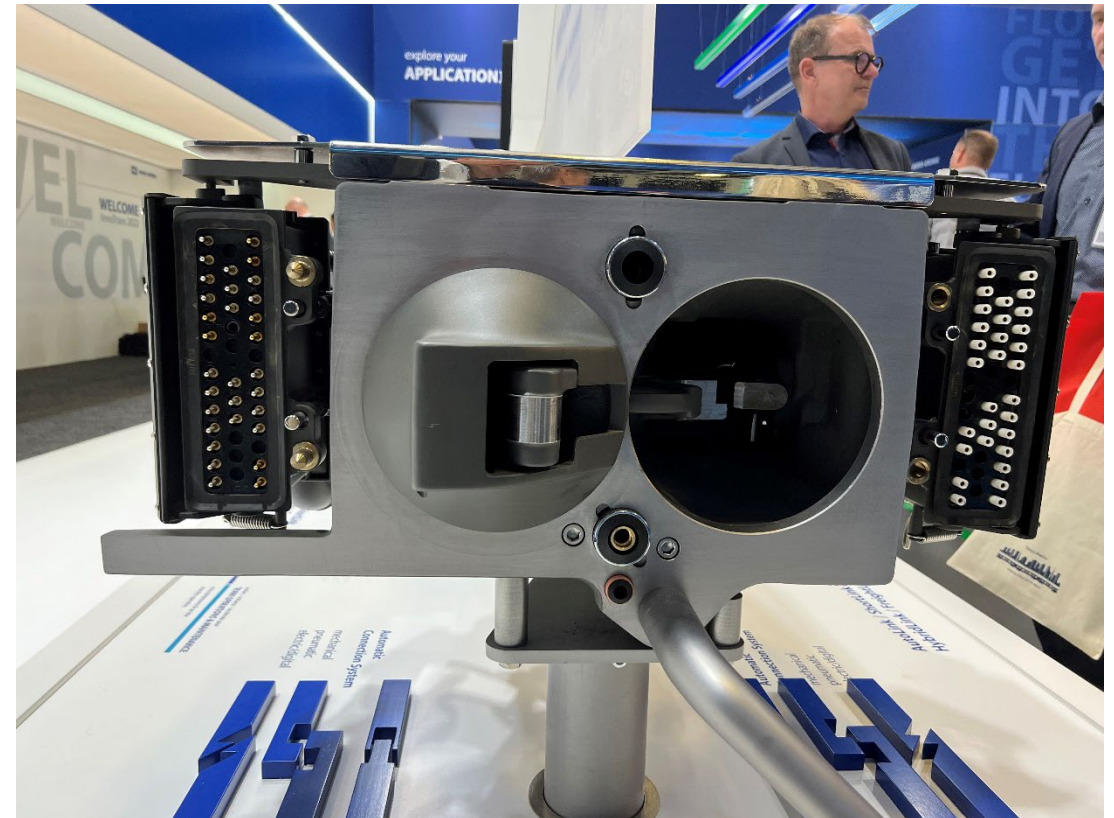
Digital automatic coupler





Transport of Dangerous Goods by Rail

Digital automatic coupler





Transport of Dangerous Goods by Rail

Digital automatic coupler

- ERA project
- Today:
 - A lot of manual work in shunting and train preparation (coupling, brake test, wagon list, ...)
 - Inefficiency
 - Time loss
 - This results in single wagon transport being uneconomical.
- Tomorrow:
 - Rapid connection and disconnection of wagons and locomotives
 - Digital communication throughout the train
 - Energy supply throughout the train
 - Increasing workers' safety by automating manual processes
 - Decreasing operational costs
 - Increasing rail freight quality



Transport of Dangerous Goods by Rail

Digital automatic coupler

- Work in the RID Committee of Experts
 - Ensuring equivalent safety and definition of requirements for the transport of dangerous goods
 - Overriding of buffers can be avoided
 - Additional safety requirements made necessary by the new technology?
 - Minimum energy absorption
 - Additional security features made possible by the new technology
 - Derailment detection
 - Detection of tank conditions during transport (e.g. pressure, temperature)
 - Authorisation of the carriage of dangerous substances that were previously prohibited?



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THANK
YOU

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