RID: 9th Session of the RID Committee of Experts’ standing working group
(Berne, 28 - 30 May 2018)

Subject: Risk assessment for extra-large tank-containers

Presentation of the representative of CEFIC
Risk assessment
BASF Class Tank Container
First Report to RID Committee
May 29th, 2018
Procedure & Content

Procedure

- Assessment in accordance with (EU) 402/2013 and comparative risk analyses in accordance with CSM process
  - Container carrying wagon (CRC) & tank container (combined transport)
  - Rail tank car (material references) (RTC)
- Evaluation of our fleet of RTC (material & wall thickness)
- Practical test drives & crash tests
- Examination of the impact of the requirements for rail

Content

- Tank container / container carrying wagon as entire system
- Connection between TC and CRC (spigot CRC, corner fitting TC, other significant sub-systems)
- Entire system in case of incident
  - irregular collision shock
  - Partial loading
  - Behaviors in case of overriding of buffers and derailment (TC & CRC, RTC)
Organization

- Coordination & Realization (BASF)
  - Equipment (BASF)
  - Process Responsibility (BASF)
  - Long-Term Driving Tests (BASF, Railway Undertaking)
  - Functional Tests (BTC Wustermark)
  - Simulation & Evaluation (TU Berlin)
  - Documentation (BASF, TU Berlin)
  - Communication (BASF)

- Manufacturer & Supplier (Van Hool, Wascosa, Tatravagonka)

- Support (Technical University of Berlin)
- Assessment Body (Bureau Veritas France)
- ECM (BASF)
- Transport Safety (BASF)
- Sounding Board (…)

Organization chart highlighting various roles and responsibilities.
Milestones

Start of the project: first of May 2018
First report to RID committee: May 29th, 2018
Long term tests: July – December 2018
Tests at the testing yard (including crash tests): June – July 2018
Second report to RID committee about the tests: November 2018
Simulation and calculation: August – December 2018
Report: December 2018 – March 2019
Proposal’s to the RID Committee: May/June 2019
We create chemistry
Work packages (in supervision with assessment body)

- System definition
- Significance check
- Long-term tests
- System comparison (B-TC, conventional rail system, combined rail system) by documents (permits, requirements...)
- Risk analysis
- Tests at the testing yard including crash tests
- Simulation of the whole system B-TC & carrying rail car
- Creation of a finite element analysis
- Valuation of the results
- Assessment & final report
BASF Class Tankcontainer (B-TC)

- Approved by Dangerous goods legislation (ADR/RID)
- Different standardized tank container types depending on purpose of usage from 53.000 to 73.500 l, high payload up to 67 tons
- For rail transport linked to new developed rail carrying wagon
- B-TCs are cranable and stackable (max 6)
Carrying wagon for rail transport of B-TC units

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specifications</th>
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<tbody>
<tr>
<td>Marshal yard (Hump)</td>
<td>possible</td>
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<tr>
<td>Noise</td>
<td>78 dB (Disc brake) 80 dB (K-brake)</td>
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<tr>
<td>Length</td>
<td>15.15 m (45’) – 17.80 m (54’)</td>
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<tr>
<td>Weight</td>
<td>16.0 to 16.5 tons</td>
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<tr>
<td>Height</td>
<td>1.10 m (G1)</td>
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Risk assessment

Normative requirements

- 2004/49/EG
- (EU)- VO 402/2013 common safety method for risk evaluation and assessment
- (EU) 2015/1136 changes (EU) 402/2013
- (EU) 321/2013 TSI WAG
- EN 12663-2 railway applications – structural requirements of railway vehicle bodies – part 2: freight waggons
- RID capture 6.8
- UIC 592