

# TOPIC 4

## Dangerous Goods

Presentation by:  
Dirk Fleerackers and  
Onorato Zanini



Brussels 18.06.2014



## The strategy of the topic 4 is to

- (1) Give a clear definition of 'dangerous goods' to illustrate the necessity of safety and control measures for the handling and transport of such goods
- (2) Describe the national and international regulations and requirements of hazardous goods for Combined Transport and determine the current bottlenecks
- (3) Perform a market analysis of dangerous goods transport in total, by different transport mode as well as in five chosen countries to represent the importance of combined transport with dangerous goods

# Road-Rail Combined transport: a growing market

System UCT: Europe-wide standard	Advantages for all
	
<ul style="list-style-type: none"> <li>➔ Hundreds of thousands of standard loading units (containers, swap bodies, semi-trailers)</li> <li>➔ 400 terminals and ports</li> <li>➔ 60,000 rail wagons</li> <li>➔ 2,000 cargo locomotives</li> <li>➔ Long-term system commitment</li> </ul>	<ul style="list-style-type: none"> <li>➔ 5.3 billion EUR turnover</li> <li>➔ 39,000 places of work</li> <li>➔ 6.7 million tons CO<sub>2</sub> reduction</li> <li>➔ 2.2 billion EUR fewer external costs</li> </ul>

## Definition of dangerous goods

- ‘Dangerous goods’ describe all materials and objects as well as solids, liquids and gases that can endanger the life and the health of the people and animals or harm environment and property on the basis of damage or accident during the transport phases.
- As a synonym for “dangerous goods” “hazardous materials” which is commonly known in US and sometimes in Canada is used.
- To ensure a safe national and international transport the manipulation of dangerous goods is defeated by strict regulations.

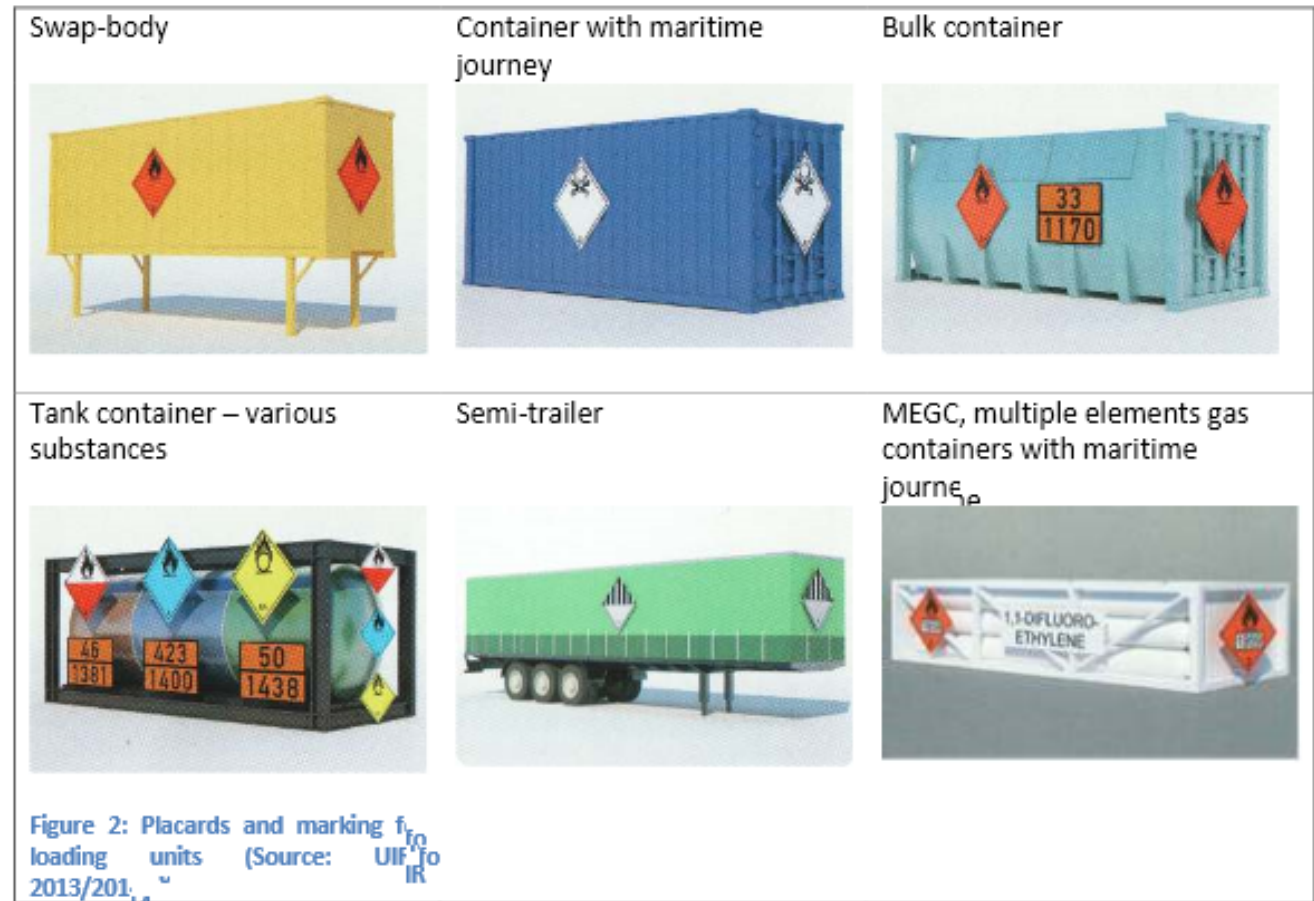
## Regulations and requirements of dangerous goods

- In the case of rail transport the carriage of dangerous goods is regulated by RID (Regulations concerning the International Carriage of Dangerous Goods by Rail).
- All types of transport of hazardous goods by road are subject to the ADR (Accord européen relative au transport international des marchandises Dangereuses par Route) regulations.
- In the case of maritime transport the IMDG (International Maritime Dangerous Goods)
- For inland waterway transport the ADN (Accord européen relative au transport international des marchandises Dangereuses par voies de Navigation interieures)

# Regulations and requirements of dangerous goods

The labels for each class of dangerous goods are placed on different sides of each loading unit to identify the type of loading goods.

There are some basics how the placarding and marking of loading units should be.



## Geographic analysis of the most important terminal and chemical industry areas in five countries



ROAD  
 Figures

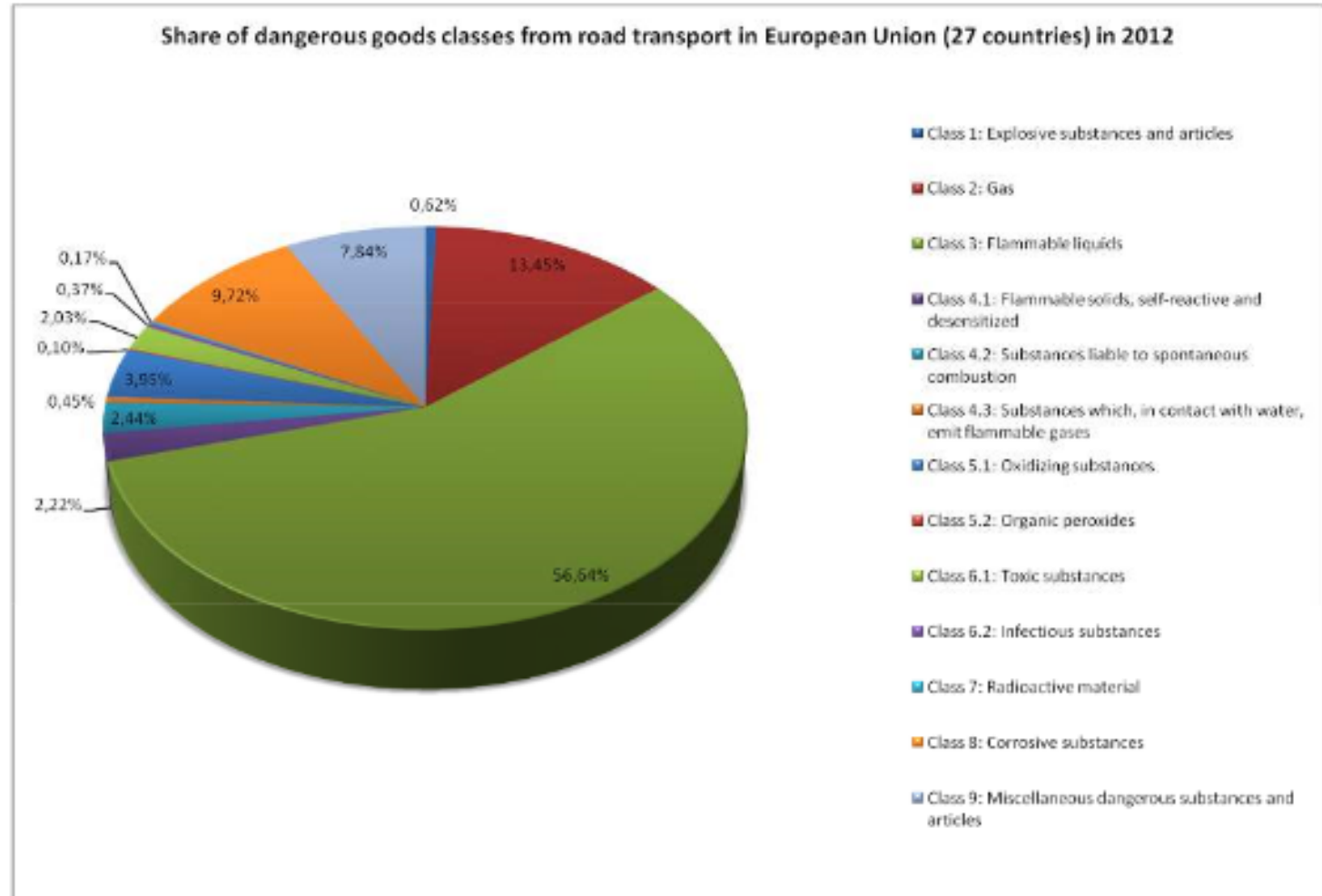


Figure 5: Share of dangerous goods classes in EU, author's illustration (Source: Eurostat 2014)



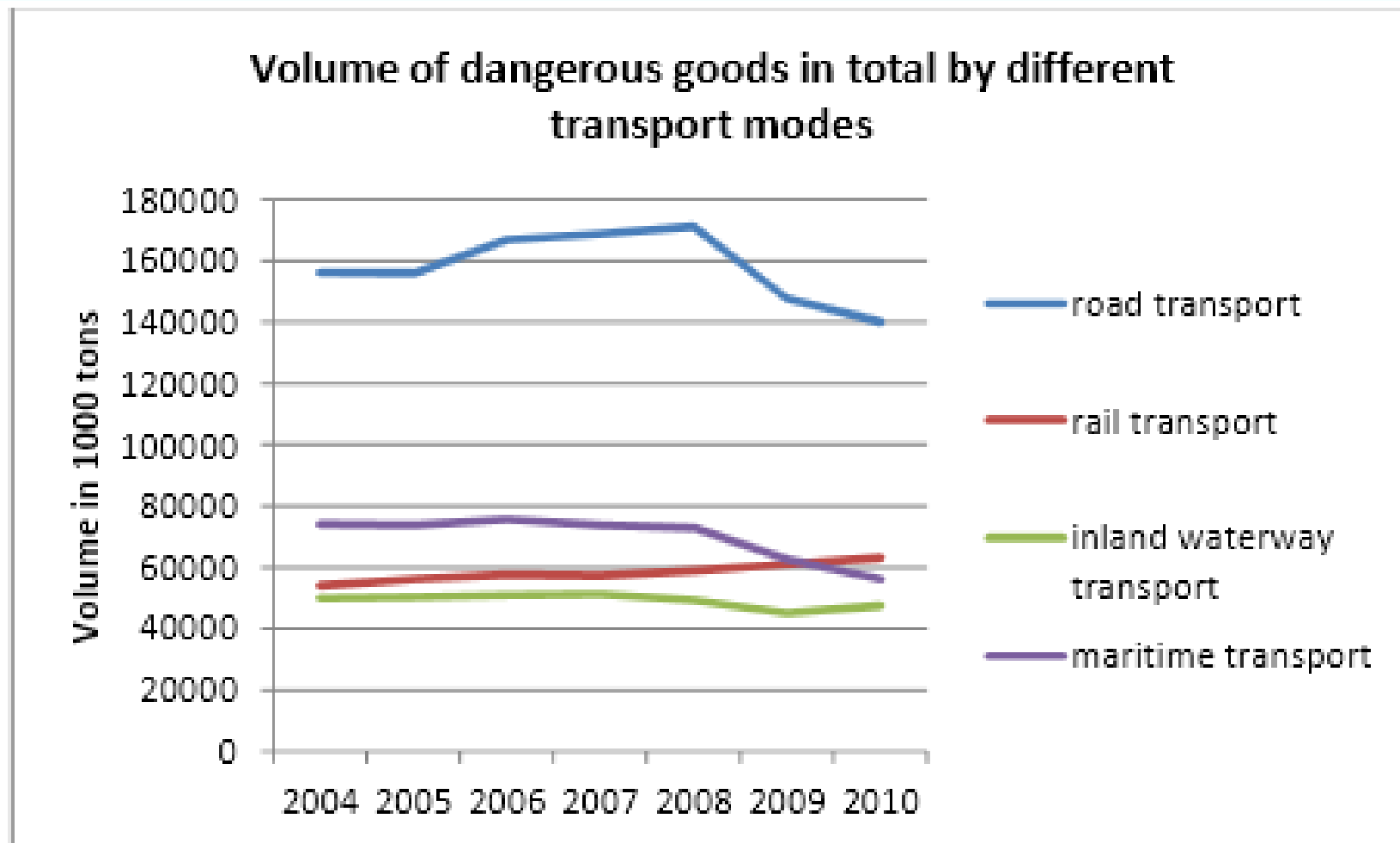


Figure 4: Volume of dangerous goods, author's illustration (Source: UIRR 2013/2014)

# Germany

In Germany are the main chemical areas in Ludwigshafen / Mannheim

Terminals:

Ludwigshafen KTL and Mannheim DUSS, Leipzig/Schkopau

Leipzig-Wahren and Schkopau/Buna, Köln/Leverkusen

Köln-Eifeltor and Duisburg with different terminals.

It is only possible to store dangerous goods in the terminal  
Ludwigshafen KTL.

## Germany - 2

Dangerous goods have a share of 18.3 percent and a value of 904,358 tons of total transport goods in Germany.

The Class 3 (Flammable liquids) gets the highest portion with 37.7 percent of transport volume, in descending order follows Class 8 (Corrosive substances), Class 6 (Toxic and infectious substance) and Class 9 (Miscellaneous dangerous substances and articles).

The other Classes are less important for the transport of dangerous goods in Germany.

The Class 7 (Radioactive) is not represented because this Class is not accepted.

# Italy

The most important hubs for the chemical industry in Italy are located in Lombardy, Veneto, Emilia Romagna, Tuscany, Umbria, Puglia, Sicily and Sardinia with the terminals Busto Arsizio, Milano Smistamento, Novara CIM, Verona, Bologna and Bari.

The share of transported dangerous goods is 14.8 percent (926,120.7 tons) in Italy, ordinary goods have a share of 85.2 percent. The share of the classes in Italy is similar to ones in Germany. Class 3 gets the highest portion with 45.6 percent, followed by Class 9 with 18.2 percent and Class 8 with 16.8 percent.

The share of the other classes is lower than 10 percent, thus less important for dangerous goods transport in Italy. Class 7 (Radioactive) is not represented because this Class is not accepted, too.

## Italy - 2

The authority in Italy only accepted the transport of dangerous goods of Class 1 (Explosive substances and articles) in few terminals.

The terminal Verona Q.E. is available for the handling of Class 1 from Italy to Austria. For transport of explosives materials from Switzerland to Italy the terminals Bari Scalo Ferruccio, Catania, Maddaloni (Marcianise), Milano-Certosa und -Rogoredo, Novara and Trento (Roncafort) are available. The border controls in Switzerland and Italy have tightened, so the duration of transport will be longer.

The forwarding of Class 1 must be announced at the responsible authority

It is not possible to store dangerous goods in any terminal.

# Belgium

In Belgium there are two important terminals for chemical industry in Antwerp: HTA (Hupac Terminal Antwerp) and Combinant (BASF).

The volume of dangerous goods reaches 17.3 percent and 502,702.7 tons of total transport goods in Belgium.

The Class 3 gets the highest volume with 50.8 percent, followed by Class 8 (20.7 percent) and Class 9 (19.1 percent).

That is the same trend like in the other European selected countries for this analysis. One different point in this table is the missing Class 1 (Explosives) of dangerous goods in Belgium.

The transport of Class 1 must be announced at the responsible authority. Class 7 is not accepted.

# Netherlands

The main chemical area in The Netherlands is Rotterdam (Terminal: RSC (Rail Service Centre)).

In The Netherlands gets the volume of dangerous goods 18.1 percent (521,803.3 tons), thus the ordinary goods a share of 81.9 percent.

The highest percentage with 38.7 gets Class 3. The shares of the classes 9 and 8 are 25.2 percent and 20.4 percent. The Class 6 follows with a portion of 9.1 percent.

The other classes are less important for the dangerous good market in the Netherlands.

The transport of Class 1 must be announced at the responsible authority. Class 7 is not accepted.

# Poland

Poland is an - so called - emerging market. Due to its dynamic, it was added to the report, though it is not yet part of the most important countries when it comes to intermodal volumes.

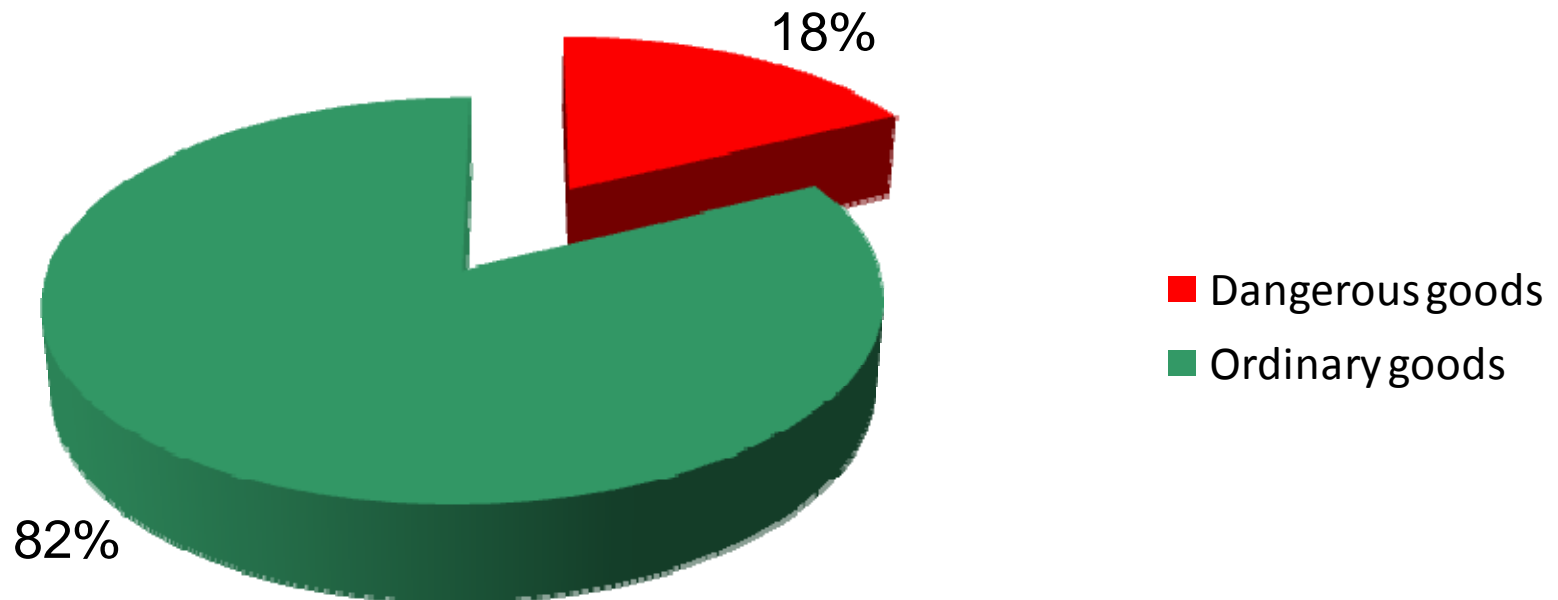
The share of dangerous goods, however, is quite significant. Currently, the share of dangerous goods volume is 19.6 percent of all transported goods. Poland gets a high portion of hazardous goods, but the total transport volume is only 90,338.1 and thereby slight. The biggest share gets the Class 6, followed by Class 3.

The other classes are less important.

Class 1, 4 and 7 are not represented.



# The percentage of tons of dangerous goods in the combined transport



Note: The analysis took into account the main markets

# Breakdown by class (18%)

Class	% DG
1	0.1%
2	5.0%
3	38.8%
4.1	1.4%
4.2	1.1%
4.3	0.1%
5.1	2.1%
5.2	0.3%
6.1	11.4%
8	20.4%
9	19.4%
Total	100%



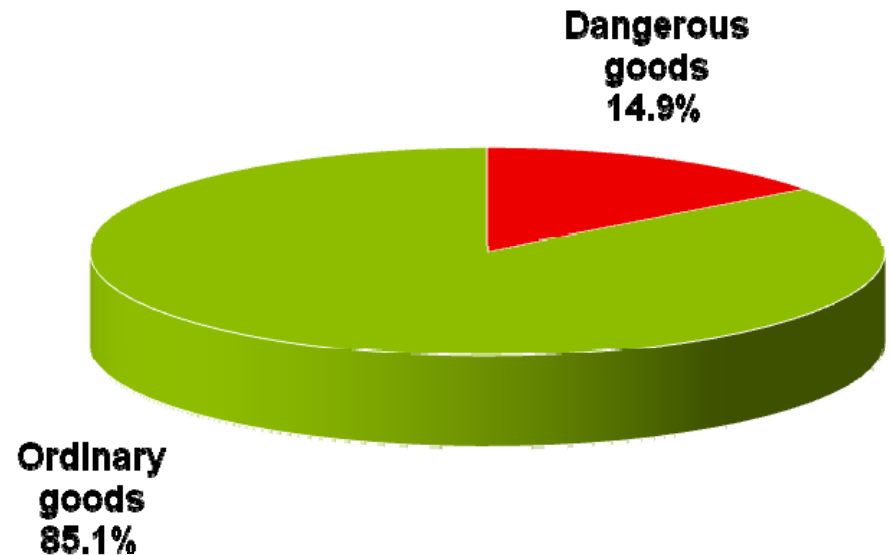
Note: The analysis took into account the main markets

## Dangerous goods - Partner Kombiverkehr – 1994-2012

Class	Year					
	1994	2000	2005	2010	2011	2012
1	4'990.5	12'100.4	6'186.1	6'325.3	5'137.0	2'925.7
2	86'706.0	105'435.8	122'497.8	146'483.2	118'255.1	117'260.4
3	315'344.1	468'633.2	610'839.4	694'156.0	689'350.4	647'309.0
4.1	18'107.5	18'599.1	20'045.7	18'270.1	20'072.7	24'567.2
4.2	4'627.5	7'506.4	5'337.3	4'162.3	3'511.8	5'089.9
4.3	9'180.6	14'486.6	8'369.0	17'317.9	16'646.6	7'420.6
5.1	11'509.1	68'143.4	91'465.7	107'330.0	91'205.1	117'456.4
5.2	1'244.2	1'035.4	3'406.3	2'089.5	2'065.5	2'288.2
6.1	198'303.8	180'610.1	304'041.5	328'217.2	328'069.0	315'199.9
7	13.7	6.3	28.6	0.0	0.0	0.0
8	192'316.4	262'164.6	378'123.0	480'394.4	441'372.4	463'482.5
9	17'195.9	152'993.5	282'291.7	351'167.7	363'006.3	373'167.7
<b>Total Tons</b>	<b>859'539.3</b>	<b>1'291'714.8</b>	<b>1'832'632.1</b>	<b>2'155'913.6</b>	<b>2'078'691.9</b>	<b>2'076'167.5</b>
<b>Total UTI</b>	<b>68'799</b>	<b>86'811</b>		<b>106'386</b>	<b>131'928</b>	<b>128'324</b>

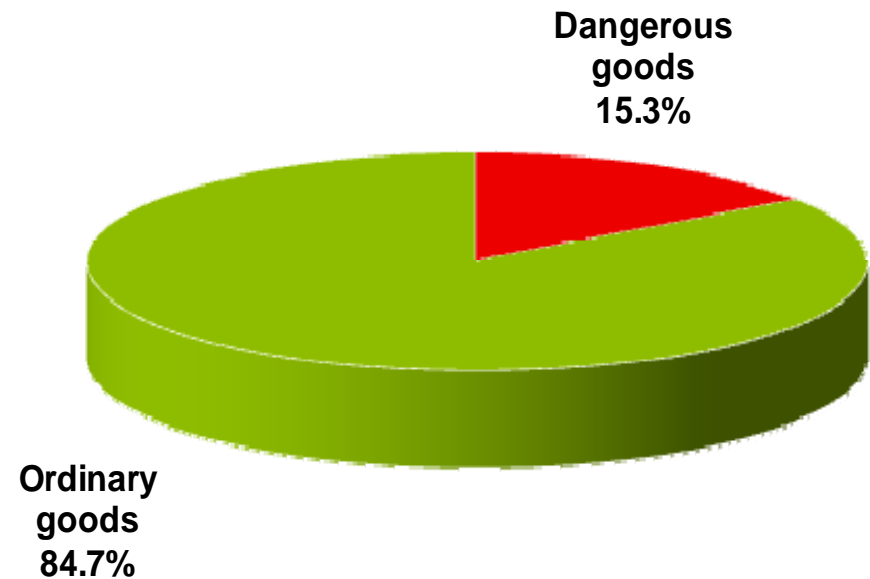
## Dangerous goods – Partner Hupac - 2012

Class	Tons	% DG
1	2,276.2	0.1%
2	102,659.8	4.9%
3	800,886.3	38.2%
4.1	27,464.9	1.3%
4.2	19,242.4	0.9%
4.3	1,441.1	0.1%
5.1	48,606.6	2.3%
5.2	5,138.1	0.2%
6.1	283,038.2	13.5%
8	398,466.7	19.0%
9	408,149.8	19.5%
<b>Total</b>	<b>2,097,370.0</b>	<b>100%</b>



## Dangerous goods – Partner Hupac - 2013

Class	Tons	% DG
1	1,843.4	0.1%
2	113,174.3	5.0%
3	881,280.7	38.8%
4.1	31,147.5	1.4%
4.2	25,846.2	1.1%
4.3	1,194.4	0.1%
5.1	46,730.7	2.1%
5.2	6,910.9	0.3%
6.1	258,541.1	11.4%
8	462,627.5	20.4%
9	441,402.6	19.4%
<b>Total</b>	<b>2,270,699.4</b>	<b>100%</b>



# Information activity to the customers concerning the Destiny Project

Important activities of information and awareness through:

- invitations to meetings (more than 600 invitees)  
(e.g. Rotterdam, Duisburg, Singen, Busto Arsizio, Brussels and other are expected)
- website, newsletter

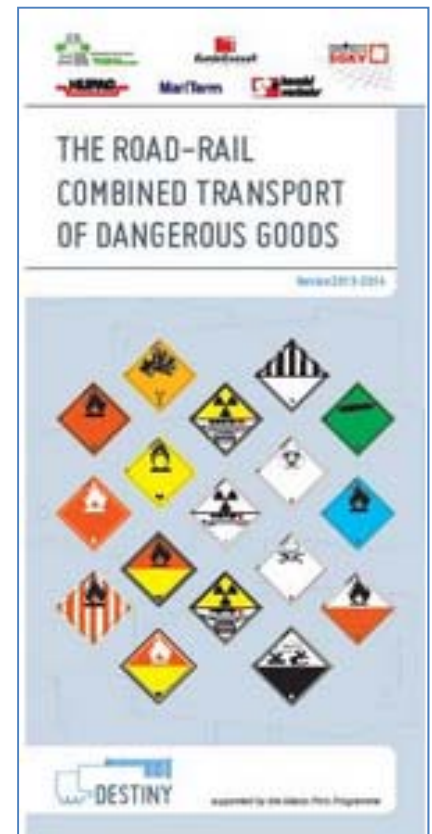
# Training activity to the personnel concerning the Destiny Project

- Internal training courses regarding the dangerous goods transport;
- New training programs have been developed;
- Hand-out and presentation of the new flyer.

# Informative leaflet on dangerous goods

The partners involved in the DESTINY project ([www.destiny-project.eu](http://www.destiny-project.eu)) issued a general informative leaflet (in 9 languages) on the transportation of dangerous goods in Road-Rail Combined Transport. It contains indications on the following aspects:

- The main changes in the ADR/RID legislations
- The basics of placarding and marking of the various loading units (containers, swap-bodies, semi-trailers, tank-containers, gas containers)
- The loading safety and controls
- The information required for the documents
- The special marks





## Other items

### Data collection and statistics:

It is needed to develop a new software in order to have at disposal a standard one.

### e-Learning tool:

It is needed to develop and implement a standard training form aimed to the intermodal transport (cf. topic 5).



**Thank you  
for your attention.**

