

## UN regulatory framework for the transport of dangerous goods and ADR



Alibech Mireles Diaz  
Sustainable Transport Division, UNECE

# Contents

- Introduction
- UN regulatory framework: orange book and related instruments
- European agreement for the international carriage of dangerous goods by road (ADR)



# Introduction

## Dangerous goods:

- are produced/transported internationally in very large quantities  
Highest volumes transported (USA/EU) include:
  - energy products: petroleum products, flammable gases
  - flammable liquids/gases (other than energy products)
  - corrosive substances
- cover a very large range of products
- present risks (all stages of lifecycle) for:
  - population
  - property
  - the environment



# Dangerous goods accidents



However, compared with the accident occurrence in the transportation of goods in general, accidents involving dangerous goods are rare: around eight out of 1,000 personal injury accidents involving a goods vehicle are classified as accidents involving dangerous goods.

Accidents during the transportation of dangerous goods often have serious consequences: the socio-economic cost of a tanker accident may be twice as high as that of a non-dangerous goods-transport accident due to the dangerous goods escaping and the environmental and subsequent damage.



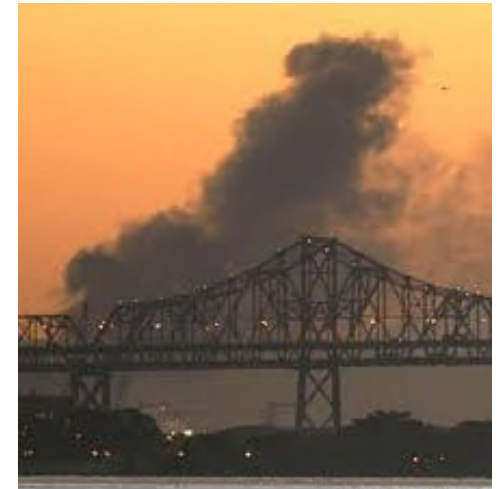
# Dangerous goods accidents



One problematic aspect of these accidents is that the cargo is often inadequately secured.

This can be seen through analysis of accidents involving dangerous goods vehicles in which people are injured due to the dangerous goods or in which more than 100 kg or liters of the dangerous goods are released.

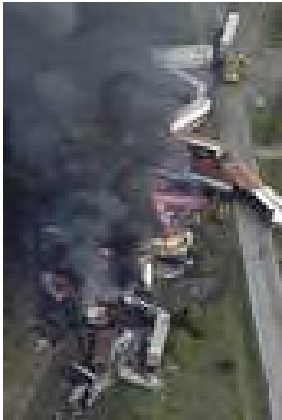
Approximately 29% of dangerous goods transported are toxic, it is particularly important that the cargo is correctly secured and the vehicles are correctly labelled.



# Dangerous goods accidents



The Viareggio accident was the derailment of a freight train and subsequent fire which occurred on 29 June 2009 in the railway station of Viareggio, Italy. Twenty-six people were injured, and as of 22 December 2009, 32 people were confirmed dead.



# Dangerous goods accidents



On 13 January 2011 the TMS Waldhof capsized on the Rhine carrying a load of 2,378 tonnes of sulphuric acid 96%. By the time salvaging operations were completed, the Rhine had been partially or fully closed to vessel traffic for a 32-day period.



As many as 450 vessels were unable to continue travelling downstream for longer periods.



Approx. 900 tonnes of sulphuric acid leaked into the Rhine. An additional 800 tonnes of sulphuric acid were drained into the river under controlled conditions as part of the salvaging operation.



# Dangerous goods accidents



**MV MSC Flaminia** is a German container ship which caught fire on 14 July 2012, claiming two lives and forcing the crew to abandon ship in the middle of the Atlantic Ocean.



# UN regulatory framework: ECOSOC

**ECOSOC**



**Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals**



**Sub-Committee of Experts on the TDG**



**Sub-Committee of Experts on the GHS**



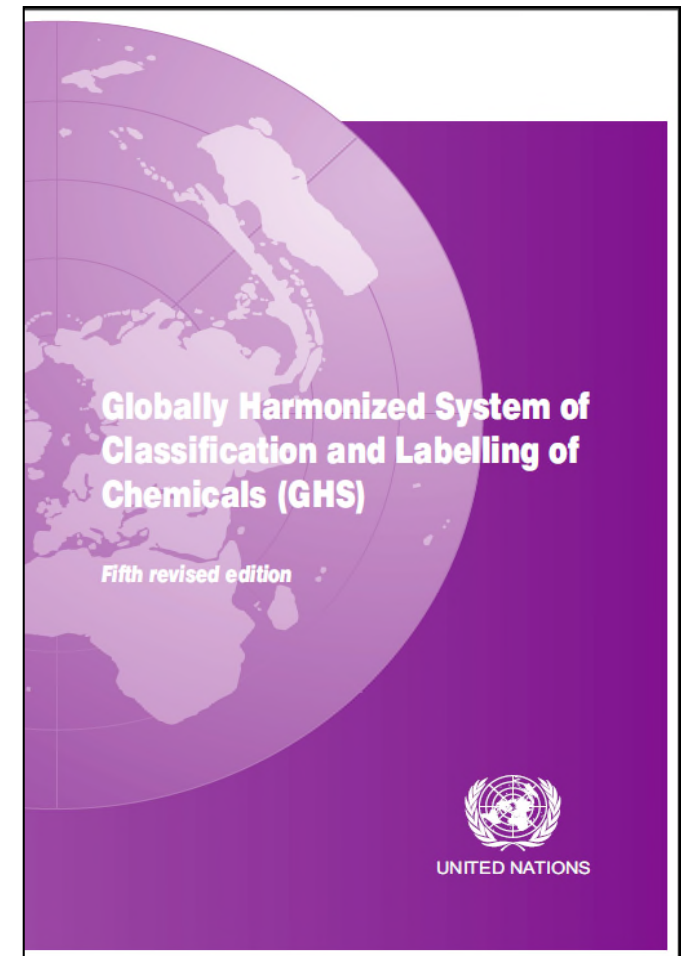
**Recommendations on the Transport of Dangerous Goods - Model Regulations**



**Globally Harmonized System of Classification and Labelling of Chemicals**

# GHS

- Covers:
  - Hazard classification (acute and chronic effects): Physical, health and environmental hazards
  - Hazard communication (labels, SDS)
- Address chemicals during handling, transport, supply and use;
- Designed to allow self-classification (no list of chemicals);
- Allow application of its elements following a “building block approach”.



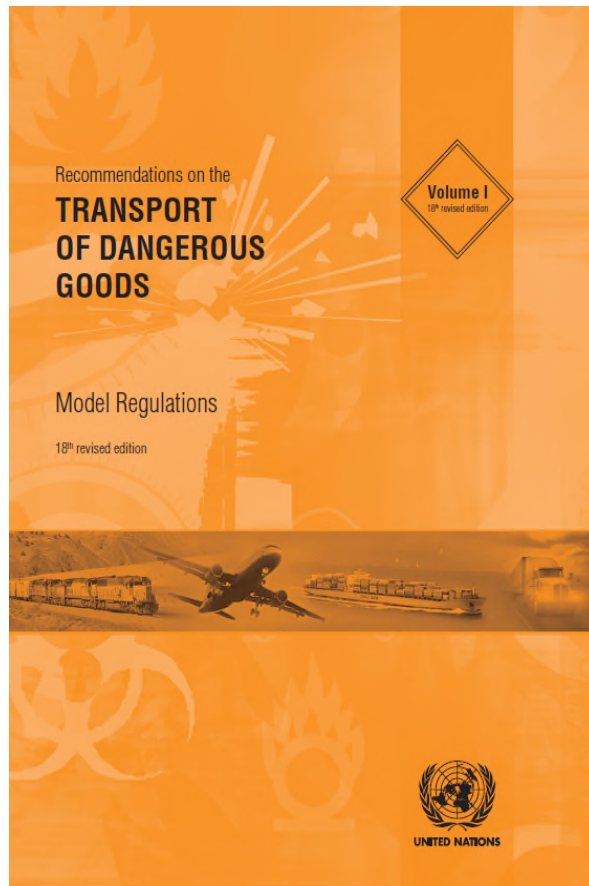
## To elaborate recommendations:

- Defining groupings or classification of dangerous goods based on risks
- Listing dangerous goods and assigning them to the proper grouping/classification
- Identifying risks (marks/labels) for each grouping/classification
- On the simplest possible requirements for shipping documents
- Addressed to all governments and international organizations dealing with safety of transport of dangerous goods
- Allowing the uniform development of national and international regulations **for all modes of transport**



**“UN Recommendations on the Transport of Dangerous Goods, Model Regulations”  
 (“Orange Book”)**

# UN Recommendations on the Transport of Dangerous Goods, Model Regulations



- **Reflect GHS provisions relevant for transport**
- **Contain all necessary provisions concerning:**
  - classification and identification of dangerous goods
  - packing conditions (including standards for packaging and tank construction)
  - labelling, marking and placarding of packages and transport equipment
  - transport documentation
- **Only provisions relevant for all transport modes**
- **Allow direct integration into modal, national and international regulations**
  - facilitate updating
  - enhance harmonization
  - reduce administrative burden (resource savings)
  - increase user-friendliness

# UN Model Regulations: Structure

- **7 parts containing all provisions concerning:**
  - scope, application, training, security
- **Part 1: General provisions**
  - classification/identification of dangerous goods
- **Part 2: Classification**
- **Part 3: List of dangerous goods**
  - packing conditions (packaging and tank construction standards)
- **Part 4: Use of packagings/Gas receptacles/Tanks**
- **Part 6: Construction, testing and approval of packagings/tanks**
  - consignment procedures
- **Part 5: labelling, marking/placarding (packages, transport equipment), transport documentation**
  - operational provisions (general and mode specific): segregation of goods, loading, stowage, storage, decontamination requirements, reporting of accidents/incidents...
- **Part 7: Transport operations**

## الهيكل

### ٧ أجزاء تحتوي على جميع الأحكام المتعلقة بما يلي:

١. الأحكام العامة، والتعاريف، والتدريب
٢. التصنيف
٣. قائمة البضائع الخطرة والأحكام الخاصة والاستثناءات
٤. الأحكام المتعلقة بالتعبئة والصهاريج
٥. إجراءات الإرسال (وضع العلامات وبطاقات الوسم ومستندات النقل)
٦. اشتراطات بناء العبوات، والحاويات الوسيطة للسوائب (الحوسات)، والعبوات الكبيرة، والصهاريج النقالية، والحاويات المتعددة العناصر للغازات (ح م ع غ)، وحاويات السوائب، والاختبارات التي تخضع لها
٧. الأحكام المتعلقة بعمليات النقل

لتحميل النسخة العربية، الرجاء الضغط على الرابط التالي:

[http://www.unece.org/ar/trans/danger/publi/unrec/rev19/19files\\_a.html](http://www.unece.org/ar/trans/danger/publi/unrec/rev19/19files_a.html)

# Harmonisation based on the UN Model Regulations



# ADR

## AGREEMENT:

- Done on 30 September 1957
- Entered into force on 29 January 1968

## ANNEXES A AND B:

- Regularly amended since 1968
- Now amended every two years on the basis of UN Recommendations on the Transport of Dangerous Goods
- Harmonized with other mode regulations (sea, air, rail, inland waterways)
- Latest edition in force since 1 January 2017



# ADR



*49 Contracting Parties as of May 2017.*

# Structure

## **Annex A**

1. General
2. Classification
3. List of Dangerous Goods
4. Use of packagings/Gas receptacles/Tanks
5. Consignment procedures (Labelling, Marking, Documents)
6. Construction, testing and approval of packagings/tanks
7. Transport operations

## **Annex B**

8. Requirements for vehicle crews, equipment, operation and documentation
9. Requirements concerning the construction and approval of vehicles

## Annex A

### المرفق ألف / Annex

١. الأحكام العامة، والتعاريف، والتدريب
٢. التصنيف
٣. قائمة البضائع الخطرة والأحكام الخاصة والاستثناءات
٤. الأحكام المتعلقة بالتعبئة/أوعية الغاز والصهاريج
٥. إجراءات الإرسال (الوسم وضع العلامات الوثائق)
٦. اشتراطات بناء العبوات، والحاويات الوسيطة للسوائب (الحوسات)، والعبوات الكبيرة، والصهاريج النقالية، والحاويات المتعددة العناصر للغازات (ح م ع غ)، وحاويات السوائب، والاختبارات التي تخضع لها
٧. الأحكام المتعلقة بعمليات النقل

## Annex B

8. Requirements for vehicle crews, equipment, operation and documentation
9. Requirements concerning the construction and approval of vehicles

# ADR = Safety + Security + Facilitation

- Allows carriers of one country to carry dangerous goods from this country through and to any other Contracting Party country. No additional requirements imposed by transit or destination countries;
- Mutual recognition of certificates:
  - Packaging certificates
  - Vehicle certificates
  - Tank certificates
  - Driver training certificates



# ADR: implications for Contracting Parties

- Administrative procedures for:
  - Packagings, tanks and vehicles approval/certificates
  - Dangerous goods safety adviser certificates
  - Driver training certificates
  - Enforcement (controls and checks; penalties)
  - Cooperation with other Contracting Parties
- Notifications to the UNECE secretariat:
  - [Driver training certificates](#)
  - [Country information: Competent Authorities, Circulation restrictions, Tunnel classification](#)
  - [Instructions in writing](#)
  - [Multilateral agreements](#)
  - [Accident reports](#)
- Regular participation in the Working Party on the Transport of Dangerous Goods (WP.15)

# Working Party on the TDG (WP.15)

- WP.15 encourage participation in its activities
- Any country, that is member of the United Nations, may participate in its activities and is invited to accede to ADR
- Participants
  - Member countries of ECE and all ADR Contracting Parties: full participants
  - Any other Member of the United Nations: may participate in a consultative capacity
  - Specialized agencies, intergovernmental organizations and non-governmental organizations: consultative status



# Work of WP.15 and Joint Meeting: Ongoing work

- Harmonization with the 20<sup>th</sup> edition of the UN Model Regulations (2017)
- Telematics
  - Check what information can be made available via telematics applications in order to improve security and safety in the transport of dangerous goods and to facilitate such transport
  - Agreement on the system architecture was reached in 2013
  - Projects and tests in real conditions
- Accident database
  - Reports in accordance with 1.8.5
  - Pilot project based on a database set up in France
- Electrical vehicle systems and other issues related to the agreement of vehicles



# Thank you!



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Sustainable Transport Division



[www.unece.org/trans](http://www.unece.org/trans)