



european association of
steel drum manufacturers

International Packing Regulations

International Packaging Regulations

The basis of all packaging legislations, all over the world, are the “**Recommendations on Transport Of Dangerous Goods**”, **Model Regulations**.

These Model Regulations are often called “The Orange Book”; they are issued by the United Nations and have the status of recommendations only.

The UN regulations can be found on <http://www.unece.org/trans/danger/danger.htm>

The book is divided in 2 separate volumes:

1. Volume 1, giving recommendations on the transport of dangerous goods and an annex with dangerous goods classification as well as a dangerous goods list, containing a very large number of specific chemicals or groups of chemicals and their respective UN numbers.
2. Volume 2, giving packaging details like packaging and tank provisions, requirements for the construction and testing of packagings and provisions concerning transport operations.

The “Orange Book” has been the basis for several packaging legislations, which are more detailed but often have the same set up.

The following **worldwide legislations** do exist:

- IMDG Code, for Transport of Dangerous Goods by Sea.
- ICAO, the packaging legislation by air. This legislation is used by different airlines to add their specific requirements, resulting in the IATA Dangerous Goods Regulations, the guide recognized by the world’s airlines.

In Europe the following legislations do exist:

- ADR, European Agreement concerning the International Carriage of Dangerous Goods by Road;
- RID, European Agreement concerning the International Carriage of Dangerous Goods by Rail;
- ADN, European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways;

These EU legislations are more detailed than the “Orange Book” and do additionally contain an assimilation list of filling goods and their assigned standard liquids for plastics packagings in Volume 2. These legislations can be found: <http://www.unece.org/trans/danger/danger.htm>

In the United States of America, only 1 packaging legislation does exist for air, road, rail and water: the Hazardous Materials Regulations of the Department of Transportation (DOT). Although based on the “Orange Book”, this book is completely different by set up as the European packaging legislations. The DOT can be found: <http://www.myregs.com/dotrspa/>

Packaging regulations do also exist in other parts of the world, e.g. Australia, Canada, Korea, etc.

Contrary to some other parts of the world, Europe knows the system of design type testing. This means that a limited number of new designed packagings need to be tested according to the above legislation (ADR/RID/ADN). These can be found in chapter 6.1 of volume 2.

The involved tests are:

1. tightness test; complete immersion in water for 5 minutes with an internal applied air pressure of 30kPa for packaging group 1 approvals and 20 kPa for packaging group 2 and 3 approvals.
2. drop tests: this includes diagonal and horizontal drop tests of filled packagings where the drop height depends on the product density and/or the required packaging group.
3. hydraulic pressure tests. Water is gradually pumped into already filled packagings, leading to an increase of the internal pressure; the required internal pressure must be maintained without any leakage for 5 minutes.
4. stack test. A test weight is applied on top of the packaging for 24 hours; the weight is determined by the total weight of the drum plus contents, the packaging group and calculated on a total height of 3.0 meters.

A packaging which passed **the performance tests** (design type testing) will receive a unique and registered certificate, issued by the packaging Authority in the specific country of testing.

New containers must bear the complete marking e.g. UN/1A1/Y1.2/250/08/NL/KK 1234, where KK 1234 is the assigned certificate number.

Steel containers, bearing a marking, may be indefinitely used as long as they are in good condition.

For plastics containers and IBC's this maximum period of use is only 5 years. (ADR/RID/ADN par. 4.1.1.15). IBC's need an additional tightness test after 2.5 years of service.

It is agreed internationally that products, sent in UN approved packagings from one country to another (e.g. France to the U.S.A) must be admitted to the first harbor of destination (the addressee). Although, in this example, the packagings are transported over the U.S.A. roads or rails, it is sufficient if they are in line with the EU packaging legislation only.

Once the addressee transports these packagings to another place in the U.S.A., the U.S. transport legislation is applicable.