

Background information on transport of dangerous goods (UN)

The Recommendations on the Transport of Dangerous Goods have been developed by the United Nations Committee of Experts on the Transport of Dangerous Goods to ensure the safety of people, property and the environment.

Objective

The objective of the Recommendations on the Transport of Dangerous Goods is world-wide harmonisation. World-wide harmonisation of: classification and definition of classes of dangerous goods, listing of dangerous goods, packing requirements, testing procedures, marking, labelling etc.

Regulations

The regulations are listed in a book of around 500 pages in which a number of aspects regarding transport are

discussed e.g.:

- a list of classes of dangerous goods
- test-requirements for packaging
- a list of dangerous goods
- level of danger
- packing requirements
- UN marking/ UN certification
- labelling of packaging etc.
- special provisions relating to individual substances

Harmonisation throughout Europe by ADR-treaty

By ratifying the ADR-treaty (= Accord européen relatif au transport international des marchandises Dangereuses par Route) below-mentioned countries have entered into the obligation to adapt the national legislation to the UN-recommendations and realise in this way harmonisation. Those countries who have ratified the a.m. ADR are: France, Belgium, Italy, Holland, Portugal, United Kingdom, Germany, Luxembourg, Yugoslavia, Switzerland, Sweden, Poland, Norway, Hungary, Spain, Austria, Denmark and Finland.

Listing of dangerous goods in classes

The United Nations distinguish below-mentioned classes of dangerous goods:

- 1** Explosives
- 2** Gases: compressed, liquefied, dissolved under pressure
- 3** Inflammable liquids
- 4.1** Inflammable solids
- 4.2** Substances liable to spontaneous combustion
- 4.3** Substances which, in contact with water, emit inflammable gases
- 5** Oxidising substances: organic peroxides
- 6.1** Poisonous (toxic) substances
- 6.2** Infectious substances
- 7** Radioactive substances
- 8** Corrosives
- 9** Miscellaneous dangerous substances

Classification of dangerous goods to level of danger

For packing purposes dangerous goods of all classes have been classified in three groups according to degree of danger they present. In the UN marking (see further) a letter designates the packing group for which the design type has been successfully tested:

Packing group	I	II	III
Great danger	X		
Medium Danger		Y	
Minor Danger			Z

Note: For each above-mentioned class is prescribed what type of packaging can be used.

Test-requirements for each a.m. group

Packaging Group	I	II	III
Drop test (m)at -18°C	1.8	1.2	0.8
Stacking test (m)	3	3	3

Questions

When a customer's request for a UN packaging is unclear, the following questions should be asked:

- the name of the dangerous good
- the number of the dangerous good
- which class
- type of substance (liquid, paste or solid)
- which packaging group
- total gross weight of filled container

UN-regulation: paste or liquid

A clear definition on the difference between a paste and a liquid is not given in UN-regulations. However there are a few remarks made on the subject:

- ADR 3551: It is allowed to make use of a substitute material during the UN-tests. For material with a viscosity

>2680 mm²/sec you can use a powder as a substitute. Very often sand and PE-granulates are used.

- ADR 2400: Class 4.1 flammable solids. This class contains materials which have a melting point > 20°C.

Remarks

- Our crates have been tested with solids. Incidentally also pastes have been approved. Information is available on request.
- Pads/logo's and colours have no influence on an already received UN-marking of a specific keg.
- When material is changed, or crate-construction or contents changes a new test procedure is required.
- Test duration: around 3 weeks.



Explanation of UN-marking

UN : United Nations

4H2 : product group: plastic boxes

X : packaging group I, II & III

.. : gross mass in kg. (= total weight of filled keg including weight of the crate)

S : solids (= powders, pills, capsules, tablets etc.)

.. : year of manufacturing

A/B/NL : country where UN-certificate has been issued: B=Belgium, NL=Netherlands, A=Austria

CURTEC : company name

.. : certificate registration number

For example: marking **UN/4H2/X25/S/--/NL/CURTEC 2556** stands for the fact that this crate (4H2) has been tested by an official Dutch (NL) testing institution. The crate is approved (UN) to be used for the transport of dangerous solid (S) goods, up to a total gross weight of 25 kg (25), in the packaging groups I, II and III (X). The approval is registered in the Netherlands, under the name CurTec (CURTEC), number 2556 (2556).

The UN-marking proves that this crate has successfully passed a drop test of 1,8 m. The result of the test is positive when after dropping, the entire contents is retained.

UN-approvals on lidded crates

Product	Ref.	Features	Capacity litre	UN-marking
Lidded crate	5100-02		60	UN/4H2/Y25/S/- /NL/CURTEC 2458
Lidded crate	5100-05		60	UN/4H2/X25/S/- /NL/CURTEC2557
Lidded crate	5102-02		25	UN/4H2/Y18/S/- /NL/CURTEC 2420
Lidded crate	5102-05		25	UN/4H2/X25/S/- /NL/CURTEC2556
Lidded crate	5103-02		45	UN/4H2/Y25/S/- /NL/CURTEC2356
Lidded crate	5103-05		45	UN/4H2/X25/S/- /NL/CURTEC2555
Lidded crate	5105-05		20	UN/4H2/X10/S/- /NL/CURTEC2647