

UN-quality marks

A UN-specification consists of a series of numbers and characters.
For example UN/1A1/X1.8/250/06/NL... or UN/X250/S/06/NL/...

UN	symbol for characters UN
1A2	type of packaging (f.e 1A1= metal drums)
1 =	drum
A =	steel
1 =	metal drum

Marking consists of 2 parts.

1st part

X = packaging group (see X, Y, Z)

2nd part

1.8 = for liquids: density of material with which the design type was tested

220 = if solid material maximum gross weight in kg (220 kg)

250 or S

250 for liquids: maximum hydraulic pressure test

S for solid materials

06 final 2 numbers of production year

NL abbreviation of country which approves the quality mark

... name of manufacturer and reference numbers of approval report

In order to receive a UN certificate certain procedures must be followed. In the Netherlands only T&C Packaging International is allowed to test. Testing takes place according to the UN norm. A couple of tests are carried out, such as:

- Drop test
- Pile test
- Airtightness test
- Hydraulic pressure test
- Chemical computability test
- Permeability test

Packaging groups

Each hazard class consist of three packaging groups. In most cases only class 3 (flammable liquids), class 6 (toxic liquids) and class 8 (corrosive liquids) are applicable to our packaging.

Class 3

a) Flammable liquids

The liquids of class 3 must be divided into one of the three packaging groups, according to their hazard rate.

I) packaging group I	very hazardous substances
II) packaging group II	hazardous substances
III) packaging group III	slightly dangerous substances

Class 6

b) Toxic substances

Dependent on their hazard rate for transport the substances in class 6 must be divided into the following three packaging groups.

I) packaging group I	very toxic substances
II) packaging group II	toxic substances
III) packaging group III	slightly toxic substances

Class 8

c) Corrosive substances

Dependent on their hazard rate for transport the substances in class 8 must be divided into the following three packaging groups

I) packaging group I	very corrosive substances
II) packaging group II	corrosive substances
III) packaging group III	slightly corrosive substances

Packaging with **x quality mark** are suitable for **packaging group I, II, III**

Packaging with **Y quality mark** are suitable for **packaging group II, III**

Packaging with **Z quality mark** are suitable for **packaging group III**



Determination of fall heights

a) For solid substances and liquids, if the test is carried out with the solid substance or liquid which must be transported or with another substance which basically has the same physical characteristics:

- I) packaging group I** fall height 1,8 meter
- II) packaging group II** fall height 1,2 meter
- III) packaging group III** fall height 0,8 meter

b) For liquids, if the test is carried out with water:

- If the density of the substances which must be transported isn't higher than 1,2:

- I) packaging group I** fall height 1,8 meter
- II) packaging group II** fall height 1,2 meter
- III) packaging group III** fall height 0,8 meter

- If the density of the substances which must be transported is higher than 1,2: the fall height is calculated as follows, based on the density of the substance which must be transported (rounded up to the first decimal place):

- I) packaging group I** fall height in meter: density x 1.5
- II) packaging group II** fall height in meter: density x 1.0
- III) packaging group III** fall height in meter: density x 0.67

Determination of hydraulic pressure test

a) Liquids may only be transported in packaging which offer sufficient resistance to the internal pressure which might develop in normal transport conditions. Packaging which mention the required hydraulic pressure test, may only be filled with liquids with a vapour pressure:

I) which either: has a total gauge pressure in the packaging at 55°C (vapour pressure of the material contained + partial pressure of air or other inert gases – 100 kPa), determines for example the maximum filling degree according to subdivision 4.1.1.1 and a filling temperature of 15°C, not higher than 2/3rd of the mentioned pressure test.

II) or at 50°C lower than 4/7th of the sum of the mentioned pressure test and 100 kPa

III) or at 55 °C lower than 2/3rd of the sum of the mentioned pressure test and 100 kPa



b) Test method and applied pressure testing

Hydraulic pressure, as determined according to one of the following methods, must:

I) at least equal the **total gauge pressure in the packaging** (i.e. the vapour pressure of the filling material + partial pressure of air or other inert gases- 100kPa) at 55°C, multiplied with a **safety coefficient of 1,5**. The determination of the total gauge pressure is based on the maximum filling degree, stated in 4.1.1.1. and a filling temperature of 15°C; or

II) at least equal the vapour pressure of the substance which must be transported at 50°C x 1,75 - 100 kPa; it must at least be 100 kPa or:

III) at least equal the vapour pressure of the substance which must be transported at 55°C x 1,75 - 100 kPa: it must at least be 100 kPa:

Besides, packaging which must contain substances of packaging group I must be submitted to a pressure test during 5 or 30 minutes, dependent on the construction material of the packaging, of at least 250kPa.

Period of validity

A UN-certificate is, under certain conditions, valid indefinitely. 1 x per year a check must be carried out by a competent authority. This authority will check if the production meets the tested prototype.

Attention:

If we advise you concerning the required UN-quality marks, it must always be checked by the filler. The filler will always remain responsible for the filled packaging.