

Recommendation for hazardous goods transportation



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PACK DELTA PUBLIC COMPANY LIMITED.

Packing Group

- ❖ Packing Group I Great Danger Substance
- ❖ Packing Group II Medium Danger Substance
- ❖ Packing Group III Minor Danger Substance

- Packing Group Code
 - X - compatible with Packing Group I, II and III
 - Y - compatible with Packing Group II and III
 - Z - compatible with Packing Group III

Packaging Test

- ❖ Drop test
- ❖ Leakproofness test
- ❖ Internal pressure test
- ❖ Stacking test



Drop test - Solution

- Use 3 sample per test
- Temperature should be decrease to 18 Celsius or lower
- Should be impact on plain, flat, tightly and not flexible floor
- Criteria
 - Sample that fill with liquid must protect all leakiness when internal and external pressure is equal
 - The quantity of substance (solid) must not change
 - Surface of sample must not broken
 - A leakiness at the lid or cap when impact did not effect to criteria

Type of Dangerous goods	Packing Group I	Packing Group II	Packing Group III
Density < 1.2	1.8 m	1.2 m	0.8 m
Density > 1.2	d x 1.5 m	d x 1.0 m	d x 0.67 m

Leakproofness Test

- ❖ Use 3 sample per test
- ❖ Sample must close all ventilation hole
- ❖ Push sample under water for 5 min and increase the internal pressure

Packing Group I	Packing Group II	Packing Group III
> 30 kPa (0.3 bar)	> 20 kPa (0.2 bar)	> 20 kPa (0.2 bar)

Internal Pressure Test

- ❖ Use 3 sample per test
- ❖ Use constant and continuously pressure for 30 minute along the test
- ❖ The pressure to test might not less than 1.75 time of vapor pressure at 50 Celsius of substance minus with 100 kPa
- ❖ Packing Group I must pass the pressure at 250 kPa for 5 to 30 min

Stack Test

- Use 3 sample per test
- Load pressure on the packaging 28 days at temperature 40 Celsius or higher
- Criteria:
 - Sample must not broken
 - Product in the sample must not leak outside
 - Sample must not deteriorate
 - Sample must not twist or unstable

Packaging Code

- Number - Packaging Type
- Alphabet - Packaging Material
- Number - Detail of Packaging

Number – Packaging Type

1. Drum
2. Wooden barrel
3. Jerricans
4. Box
5. Bag
6. Composite packaging

Alphabet - Packaging Material

- A - Steel
- B - Aluminum
- C - Wood
- D - Plywood
- F - Reconstituted wood
- G - Fiberboard
- H - Plastic material
- L - Textile
- M - Complicated layer paper
- N - Other metal
- P - Glass, Tile or Stone

Example

Packaging Type	Material	Detail of Packaging	Code
1. Drum	B. Aluminum	Closed Top	1B1
		Open Top	1B2
	H. Plastic	Closed Top	1H1
		Open Top	1H2
3. Jerrican	A. Steel	Closed Top	3A1
		Open Top	3A2
	H. Plastic	Closed Top	3H1
		Open Top	3H2

UN Label

- UN sign
- Packaging Code
- Packing Group Code
- Product density
- State of product
- Production year
- Production month (for Plastic only)
- Authorized country
- Production Company

Example

Specification

- Maximum Capacity for drum and jerrican
 - 1H1,1H2 : 450 Liter
 - 3H1,3H2 : 60 Liter
- Maximum Packaging Mass for drum and jerrican
 - 1H1,1H2 : 400 Kg
 - 3H1,3H2 : 120 Kg