



Industrial Nitrocellulose

Packaging, transportation
Handling and storage

Packaging and types

Our packaging conforms to international regulations set by the UN Recommendations relating to transport of dangerous goods (UN 2555 and 2556). Below you can find an overview of frequently used types of packaging. We are able to offer also other packaging types according to requests of our customers if they are consistent with related legislation.

PRODUCT RANGE WITH PACKAGING AND QUANTITIES (KG NET)					
	box 60 l	box 100 l	drum 90 l	drum 120 l	drum 220 l
A 34	20	30	38,5	38,5	95
A 33	20	30	38,5	38,5	95
A 32	20	30	38,5	38,5	95
A 30	20	30	38,5	38,5	95
A 27	20	30	38,5	38,5	95
A 23	20	30	33	33	90
A 15	20	30	33	33	90
A 13	20	30	33	33	90

	box 60 l	box 100 l	drum 90 l	drum 120 l	drum 220 l
E 34	20	30	38,5	38,5	95
E 32	20	30	38,5	38,5	95
E 31	20	30	38,5	38,5	95
E 30	20	30	38,5	38,5	95
E 27	20	30	38,5	38,5	95
E 25	20	30	38,5	38,5	95
E 24	20	30	38,5	38,5	95
E 23	20	30	38,5	38,5	90
E 21	20	30	33	33	90
E 15	15	25	33	33	90
E 12	15	25	33	33	80
E 9	15	25	33	33	80
E 7	15	25	33	33	80
E 6	15	25	33	33	80
E 4	15	25	33	33	80



<p>Cardboard box 60 l 24 boxes on a EURO or NO MARK pallet</p>			
<p>Cardboard box 100 l 12 boxes on a EURO or NO MARK pallet</p>			
<p>Cardboard box 100 l 15 boxes on a EURO or NO MARK pallet</p>			
<p>Cardboard drum 90 l 6 drums on a EURO or NO MARK pallet</p>			
<p>Cardboard drum 120 l 5 drums on a CP3 pallet</p>			
<p>Cardboard drum 220 l 4 drums on a CP3 pallet</p>			

Transportation

TRANSPORT BY TRUCK						
TYPES OF PACKAGING	MEASUREMENTS (cm)		WEIGHT OF PACKAGING (kg)	WEIGHT OF PALLET (kg)	FULL TRUCK LOAD	
	inner	outer			quantity of packaging	quantity of pallets
cardboard box 60 l		37 x 37 x 50	1.5	25	792	33 - 1 layer
cardboard box 100 l		37 x 37 x 75	1.5	25	495	33 - 1 layer
cardboard drum 90 l	37 x 76	39 x 79.5	4.5	25	396	66 - 2 layers
cardboard drum 120 l	44 x 75	46 x 81	4.5	25	220	44 - 2 layers
cardboard drum 220 l	57 x 87	58.5 x 91	7.2	25	176	44 - 2 layers

TRANSPORT BY RAIL						
TYPES OF PACKAGING	MEASUREMENTS (cm)		WEIGHT OF PACKAGING (kg)	WEIGHT OF PALLET (kg)	FULL WAGGON 2-AXLE	
	inner	outer			quantity of packaging	quantity of pallets
cardboard box 100 l		37 x 37 x 75	1.5	25	360	33 - 1 layer
cardboard drum 90 l	37 x 76	39 x 79.5	4.5	25	360	66 - 2 layers
cardboard drum 220 l	57 x 87	58.5 x 91	7.2	-	88	no pallets

TYPES OF PACKAGING	MEASUREMENTS (cm)		WEIGHT OF PACKAGING (kg)	WEIGHT OF PALLET (kg)	FULL WAGGON 4-AXLE	
	inner	outer			quantity of packaging	quantity of pallets
cardboard box 100 l		37 x 37 x 75	1.5	25	720	60 - 1 layer
cardboard drum 90 l	37 x 76	39 x 79.5	4.5	25	720	120 - 2 layers

TRANSPORT BY CONTAINER						
TYPES OF PACKAGING	MEASUREMENTS (cm)		WEIGHT OF PACKAGING (kg)	WEIGHT OF PALLET (kg)	FULL CONTAINER 40'	
	inner	outer			quantity of packaging	quantity of pallets
cardboard drum 220 l	57 x 87	58.5 x 91	7.2	25	160	40 x CP3

These loading quantities are the most usual. Loading of various types of packaging in mentioned waggons (containers) is possible.

TRANSPORT INFORMATION

Type of pallets

EURO:	120 x 80 cm
NO MARK:	120 x 80 cm
CP 3:	115 x 115 cm

Land transport

ADR/RID:	Class: 4.1	Classification Code: D
UN number and name:	2556 NITROCELLULOSE WITH ALCOHOL	
Packing group:	II	
Labels:	4.1	

Inland navigation

ADN/ADNR	Class: 4.1
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Sea transport

IMDG:	Class: 4.1	UN-Number: 2556	Packaging group: II
Marine pollutant:	no		
Proper shipping name:	NITROCELLULOSE WITH ALCOHOL		
Additional information:	EmS: F-B, S-J		

Air transport

ICAO/IATA	Class: 4.1	UN-Number: 2556	Packaging group: II
Proper shipping name:	NITROCELLULOSE WITH ALCOHOL		
Label:	Flammable solid		

Other data:

It is necessary to keep nitrocellulose for transport in wetted stage with minimum damper content of 25 %.

Handling and storage

Nitrocellulose is a highly flammable material. In order to avoid fire and enhance the safety at work while handling and storing following precautions must be taken:

Handling

- Keep away from sources of ignition - do not smoke.
- Use tools only from the non-sparking material (cooper, brass, wood)
- Tools made of plastic material must not be used because of their tendency to produce static electricity.
- Handle containers with care (exclude friction, shock, impacts, guarantee against electric discharge).
- Do not allow wetted product to dry out, keep container tightly closed when not in use.
- Avoid inhaling of product vapours.
- Ensure effective ventilation.

Storage

- Store sealed in original tightly closed containers in a dry, cool and well-ventilated area
- in accordance with national state and local environmental regulations.
- Keep away from strong acids, strong bases and oxidizing agents.
- Packagings with nitrocellulose do not have to be exposed long-termly to direct sunshine.
- Take precautionary measures against static discharges.
- If storing, hold nitrocellulose in wetted stage with minimum of 25 % damper content.
- Recommended temperature of storage - max. 40 °C.

You can find more detailed information relating to this issue in our material safety data sheets (MSDS) that are available on our web pages www.synthesia.eu or upon request.

A new concept of the use of inner PE liners

Under the applicable international regulations and directives relating to transport of dangerous goods, packaging must comply with the P 406 regulation in case of nitrocellulose (UN 2555 and 2556). There is stated that waterproof inner liners preventing the wetting agent evaporation must be used inside cardboard drums and boxes.

Nowadays, it is usual to use polyethylene liners for nitrocellulose packaging whose antistatic properties are achieved by adding a migrating agent. This method is applied by all European suppliers of nitrocellulose.

However, safety of nitrocellulose packaging can be improved when using polyethylene liners containing non-migrating antistatic additives. This second method has been mentioned by ENA (European Nitrators Association) in its recent alternative nitrocellulose packaging study. According to ENA there are two methods how to reach the highest possible level of meeting safety standards at the present time:

Method N°- 1

- The use of conducting polyethylene liners

In this case, it is necessary to use an earth clip when emptying; earthing is not permitted through personnel handling the packaging.

Method N°- 2

The use of antistatic polyethylene liners containing a non-migrating agent

For this method, earthing/earth connection is permitted either by means of an earth clip or through personnel handling.

By contrast with the current standards, the antistatic polyethylene liners containing a non-migrating agent represent enhancement of safety at work while handling nitrocellulose. The newly used polyethylene liners maintain its antistatic properties even in circumstances of a relative humidity value dropping below 30 %. Specific surface resistance of these poly-ethylene liners is in the required range of 10^8 to 10^{11} Ohms.

This concept makes it possible for every processor to have the choice between earthing by means of an earthing system or through service personnel. In spite of it, the new packaging concept does not represent any change of handling procedures when emptying nitrocellulose packaging.

The Handling Procedure of Emptying Nitrocellulose Packages

When emptying nitrocellulose out, the polyethylene liners must be earthed in a manner that enables to prevent the occurrence of electrostatic discharge. When using antistatic polyethylene liners, the following two ways of earthing are permitted:

1. Earthing by means of an earth clip

Earthing is made by means of an earth clip attached to the package and connected with a ground conductor (see Picture 1). Static electricity passes through the earth wire to the ground preventing the occurrence of electrostatic discharge.

2. Earthing through service personnel

Another option, a frequently used one, is earthing through service personnel (see Picture 2). In this case it is necessary to adhere to three crucial requirements for safe and reliable earthing as follows:

- A conducting floor
- Boots with conducting soles
- Conducting gloves

Under no circumstances should insulating materials, for example leather gloves, be used. Electrostatic removal through service personnel must be ensured throughout the course of handling nitrocellulose. The polyethylene liners must be kept inside the packaging during emptying. They are allowed to be taken out of the packaging as soon as nitrocellulose is unloaded.

Earthing through service personnel is sufficient if polyethylene liners containing non-migrating additives that are newly offered by Synthesia, a. s. are used.



Earthing by means of an earth clip in the case of cardboard boxes (Picture 1)



Earthing through service personnel in the case of antistatic liners with non-migrating additives inside cardboard boxes (Picture 2).

If you have any questions regarding this new packaging concept, please contact:

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The packaging concept as well as the handling procedures are based on the CENELEC (European Committee for Electrotechnical Standardization) standard. Any nitrocellulose processor is further responsible for observance of all local regulations, directives and orders not substituted by the recommended handling procedures.



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