



Manual

# Drums

July 2020

# Washing

The washing instructions below apply to the cleaning of all CurTec packaging products that are made of polyethylene and polypropylene:

Best results will be achieved with a washing installation that is equipped with spray nozzles or a so-called Ultra-Sonic installation.

Best qualified detergent is a low-foaming alkaline substance with a PH-value of 10 to 12 (solvents.)

The recommended temperature of the washing water lies between 40°C and 50°C.

The temperature of the rinsing water can only be up to 65°C.

Washing at maximum temperature can only take up to 35 seconds and rinsing at maximum temperature only up to 20 seconds. It prevents the plastic from warming up and shrinking.

Increased drying of products can be effected by means of applying cold air. If warm air will be used the drying can only last up to 30 seconds at a maximum temperature of 65°C.

The blowing and drying part of the installation needs to be adjusted to the product, so those difficult spots of the kegs can also be dried.

For specific technical information CurTec would like to refer to the various suppliers of washing installations.

***Attention!*** Check the thermostat and programmed times of your equipment regularly.

# 01 Close



The UN marking on a drum is only valid if the following closing instruction is applied.



1. Put the lid on the drum and turn it clockwise until it is tight.



2. Turn the lid 30° clockwise using a tool. Only now the drum is closed liquid tight and the UN marking is valid.



3. After closing the drum you can make the container tamper evident. For that purpose the lid and the container have sealing loops. CurTec advises you to use Unisto Compact seals.

Put the tail of the sealing strip into the sealing loops of the lid and drum. Push the tail through the eye of the sealing strip and pull close.



4. The drum is now sealed.

*Remark: Sealing the drum is not a requirement for the validity of the UN marking*

## 02 Open



1. In case a drum is sealed, tear the seal and remove it from the loops.



2. Turn the lid counter-clockwise to open.

### **Unstacking**

Due to the weight of the stack on top, the rubber gasket can get compressed and needs time to recover. After unstacking, CurTec strongly advises users to leave the drums in an upright position for at least 15 minutes prior to opening. This allows the rubber gasket to return to its original shape and guarantee an optimal closure.

## 03 Use

### Filling

The temperature of the content cannot exceed 70°C. The content has to cool down to 30°C before the container can be closed. The drum can be closed according to instruction 1.



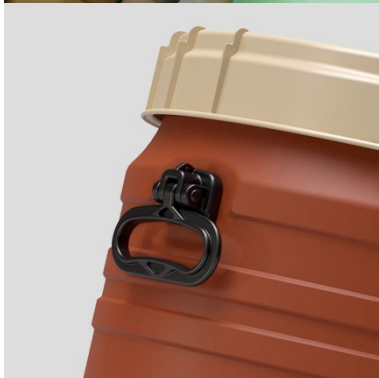
### Lifting

Depending on the type of drum, you can lift the container by using the large handgrips on the body or the handgrips on the lid.

**Attention!** Please consider the HSE regulations regarding weight and frequency restrictions for lifting

### Charging the handgrip

The mounted handgrips have been designed for manual displacement of drums only. They are not suitable for mechanical handling, such as lifting a drum with a hoist. The handgrip is suited for a brief, controlled charge of maximum 80 kg and a couple of minutes, during which the handgrip cannot be torqued.



### Freezing

The drums are made of plastic which is resistant to a minimum temperature of -25°C. As of -5°C, shock load on the drums should be avoided.



**Attention!** The volume of drums filled with water-based contents can increase by 10%. The chances that drums will distort is real and it will reduce the stability of a drum stack on a pallet. Please maintain a maximum filling level of 90% and test the stability of a pallet stacking.



### **Air transport**

During air transport, the pressure drops inside a plane's cargo hold, which causes air inside a package wanting to escape. After landing, normal atmospheric pressure prevails again which, depending on the amount of escaped air\*, can cause the drum wall to cave in.

CurTec packaging has not been designed to compensate pressure differences. The construction is such that a correctly closed packaging allows air to escape relatively fast, but does not allow it to return easily.

Since CurTec has no influence on the use of its packaging by end users, they advise to test each transport mode.

It remains the responsibility of end users to verify whether a package and content comply with relevant transport regulations. CurTec refers to the regulations mentioned in the UN certificates.

*\* The quantity depends on the content type (the shape and air between) and the filling degree/ level*

## 04 Static load

When stacking drums for storage in e.g. a warehouse or cold store, it is important to know what the maximum load on the lowest drum in a stack can be.

The stacking load depends strongly on: the weight of a drum, the number of drums to be stacked, the weight of interlayers and pallets, the ambient temperature, the duration of the load and the surface beneath the lowest drum.

The following table shows the maximum stacking load (in kg) at a given ambient temperature, during a certain period of time, for a drum placed on a flat, closed surface or pallet.

Max. temp °C	0	0	0	15	15	15	25	25	25	35	35
Months	1	4	12	1	4	12	1	4	12	0,5	6
6940	320	270	235	205	165	145	145	125	110	130	90
6941	320	270	235	205	165	145	145	125	110	130	90
6942	320	270	235	205	165	145	145	125	110	130	90
6943	320	270	235	205	165	145	145	125	110	130	90
6944	320	270	235	205	165	145	145	125	110	130	90
6945	290	230	200	180	150	130	130	110	95	105	75
6947	290	230	200	180	150	130	130	110	95	105	75
6948	290	230	200	180	150	130	130	110	95	105	75
6949	290	230	200	180	150	130	130	110	95	105	75
6950	290	230	200	180	150	130	130	110	95	105	75
6990	440	380	325	285	240	210	210	185	155	175	125
6994	440	380	325	285	240	210	210	185	155	175	125
7003	110	92	80	72	60	52	52	44	38	42	30
7004	110	92	80	72	60	52	52	44	38	42	30
7006	110	92	80	72	60	52	52	44	38	42	30
7010	150	125	110	98	80	70	70	60	52	58	42
7011	150	125	110	98	80	70	70	60	52	58	42
7015	150	125	110	98	80	70	70	60	52	58	42
7019	300	250	220	210	180	160	150	125	110	120	90
7020	150	125	110	98	80	70	70	60	52	58	42
7026	180	150	130	115	95	85	85	72	62	68	50
7042	320	270	235	220	180	160	160	135	115	135	95
7055	320	270	235	220	180	160	160	135	115	135	95
7068	320	270	235	220	180	160	160	135	115	135	95

**Attention!** The weights mentioned in the table have been established after simulation and can only serve as indications. CurTec recommends users to perform tests at all times.



The table allows you to calculate the number of drums that can be stacked: Reduce the stacking weight mentioned with the relevant share of the weight of intermediate layers and divide by the weight of the drum with content. This number, with a figure after the decimal point lower than 8, rounded down is the total amount of drums that can be stacked on the lowest drum of a stack.

#### **Example**

*How many 15 liter drums (art. no. 7015) with a content weighing 15 kg can be stacked on a pallet at 15°C during 1 month?*

The relevant weight share of intermediate layers is 5 kg, so  $(98-5)/15 = 6.2$ . The number of drums that can be stacked on the lowest drum is 6.

In case of a different duration or temperature, please choose the next appropriate column. For shorter stacking durations, the table of instruction 5 (Dynamic load) can be of service.

#### **Attention points**

Before stacking the drums, the temperature of the contents must be equal or lower than the ambient temperature.

The maximum stacking time is reduced considerably at temperatures above 35°C. The stacking load in the table is at 50°C only 75% of the last mentioned value and at 60°C only 50%.

When a stack is higher than 2.5 meters, the floor angle cannot exceed 0.5%.

CurTec strongly discommends stacking drums horizontally, lying on the side.

When changing transport mode, from storage to shipping or vice versa, the lowest drums of a stack must always be placed highest in a new stack.

## 05 Dynamic load

When stacking drums for transport, it is important to know what the maximum load on the lowest drum in a stack can be.

For transport, this stacking load is called dynamic load and can be found by dividing the admissible static load by a so-called safety factor. These factors are:

*3 for air transport*

*2 for road transport*

*1.8 for rail transport*

*1.3 for maritime transport*

Max. temp °C	5	5	5	5	5	30	30	30	30	30	40	40	40	40	40
Weeks	0,5	1	2	3	5	0,5	1	2	3	5	0,5	1	2	3	5
6940	360	330	300	285	250	175	160	150	140	135	135	120	112	105	100
6941	360	330	300	285	250	175	160	150	140	135	135	120	112	105	100
6942	360	330	300	285	250	175	160	150	140	135	135	120	112	105	100
6943	360	330	300	285	250	175	160	150	140	135	135	120	112	105	100
6944	360	330	300	285	250	175	160	150	140	135	135	120	112	105	100
6945	320	290	265	250	240	155	140	130	122	117	117	104	96	92	87
6947	320	290	265	250	240	155	140	130	122	117	117	104	96	92	87
6948	320	290	265	250	240	155	140	130	122	117	117	104	96	92	87
6949	320	290	265	250	240	155	140	130	122	117	117	104	96	92	87
6950	320	290	265	250	240	155	140	130	122	117	117	104	96	92	87
6990	500	460	420	395	375	235	215	200	190	180	180	165	150	140	130
6994	500	460	420	395	375	235	215	200	190	180	180	165	150	140	130
7003	126	115	106	100	95	62	56	52	49	46	46	42	38	36	34
7004	126	115	106	100	95	62	56	52	49	46	46	42	38	36	34
7006	126	115	106	100	95	62	56	52	49	46	46	42	38	36	34
7010	170	155	145	138	130	84	77	70	67	64	64	57	54	50	47
7011	170	155	145	138	130	84	77	70	67	64	64	57	54	50	47
7015	170	155	145	138	130	84	77	70	67	64	64	57	54	50	47
7019	320	300	280	250	240	170	155	140	130	120	120	110	105	100	95
7020	170	155	145	138	130	84	77	70	67	64	64	57	54	50	47
7026	200	180	165	155	150	95	90	83	78	74	74	66	60	57	54
7042	380	350	320	300	290	180	165	155	145	140	140	125	115	110	105
7055	380	350	320	300	290	180	165	155	145	140	140	125	115	110	105
7068	380	350	320	300	290	180	165	155	145	140	140	125	115	110	105

**Attention!** The weights mentioned in the table have been established after simulation and can only serve as indications. CurTec recommends users to perform tests at all times.

The stacking weights mentioned in the table above are indicative and depend on temperature and time: 5°C is the temperature for cooled transport, 30°C is the temperature for the average transport by road or inland waterways and 40°C is the temperature for transport in warmer surroundings. In case of a different duration or temperature below 40°C, please choose the next appropriate column. In case of even higher temperature, please consider that the dynamic load is at 50°C only 75% of the last mentioned value and at 60°C only 50%.

The table allows you to calculate the number of drums that can be stacked: Reduce the stacking weight mentioned with the relevant share of the weight of intermediate layers and divide by the weight of the drum with content. This number, with a figure after the decimal point lower than 8, rounded down is the total amount of drums that can be stacked on the lowest drum of a stack.

#### **Example**

*How many 15 liter drums (art. no. 7015) with a content weighing 13 kg can be transported by rail at 3°C during 1.5 weeks?*

The relevant weight share of intermediate layers is 7 kg, so  $(145-7)/(13 \times 1.8) = 5.89$ . The number of drums that can be stacked on the lowest drum is 6.

#### **Attention points**

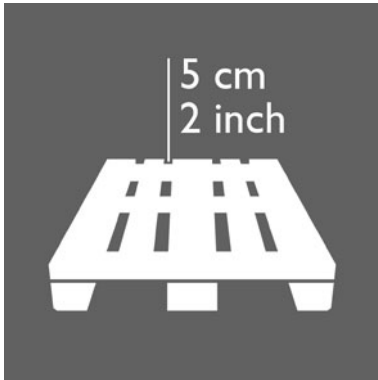
When changing transport mode, from storage to shipping or vice versa, the lowest drums of a stack must always be placed highest in a new stack.

The drums must be stowed professionally and fixed in such a way that makes moving impossible.

For the use of pallets, see instruction 6 (Palletization).

For stacking drums in a warehouse, see instruction 4 (Static load).

## 06 Palletization



### Palletization

Each pallet should be fitted with a solid, flat intermediate layer prior to loading. A pallet should have an almost closed surface fitted with planks that are no more than 5 cm/ 2 inches apart. CurTec advises not to exceed a total stacking height of 2 meters.

In case a pallet is placed on top of another pallet, an intermediate layer is required to enable an equal spread of the pressure. This layer should also be solid and flat.

Filled drums are placed on a flat surface and stacked by placing the base of the drum in the counter shape of the lid.

### Packing

CurTec recommends the use of a heat shrink pallet cover, which needs to be shrunk around the pallet as well. In addition, the base of the pallet needs to be stretched with foil as well. The drums at the base of a stack will carry most of the load and to avoid a collapse they cannot be deformed by overstretching the foil or over-heating the cover.

When positioning the drums on a pallet it is important to turn the handgrips away from the pallet corners to avoid damaging the heat shrink pallet cover or the stretch foil.

**Attention!** *The total load on the bottom drum of a stack may never exceed the maximum loads as indicated in the tables of instructions 4 and 5.*



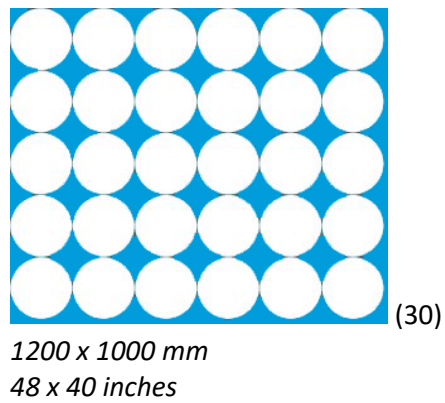
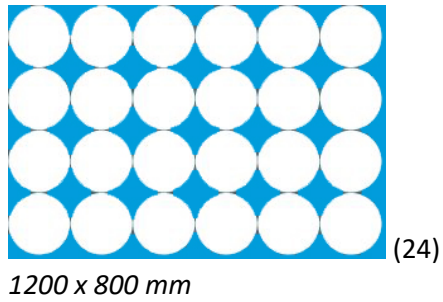
### Pallet handling

From a safety point of view, CurTec recommends to transport only one pallet at a time with a fork lift truck. In order not to disturb the stack, the forks of the truck need to be kept almost horizontal.

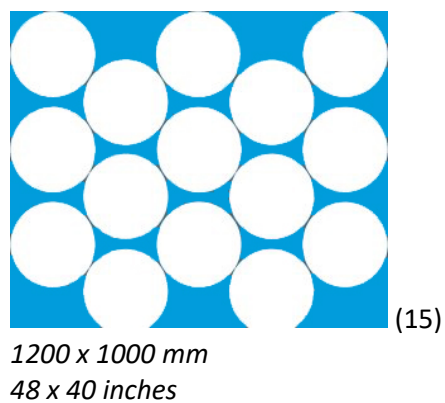
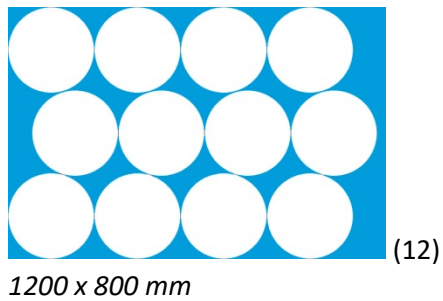
### Pallet schemes

CurTec advises you to respect the following quantities per layer:

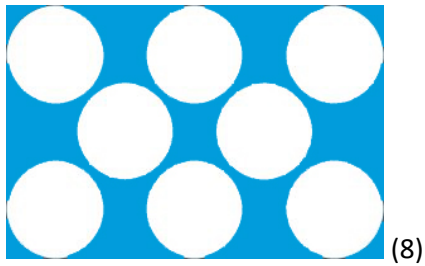
Art. No. 7003 • 7004 • 7006



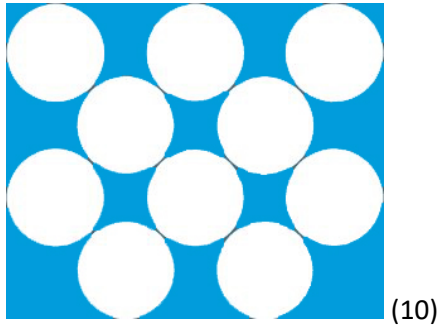
Art. No. 7010 • 7011 • 7015 • 7020



Art. No. 7026

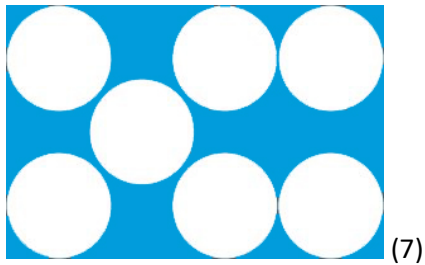


1200 x 800 mm

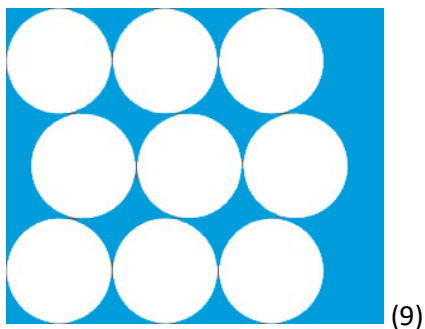


1200 x 1000 mm  
48 x 40 inches

Art. No. 6945 • 6946 • 6947 • 6948 • 6949 • 6950

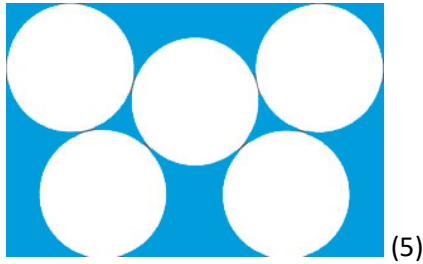


1200 x 800 mm



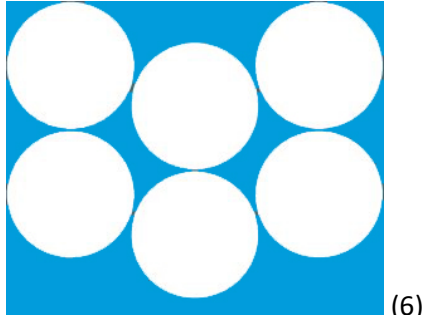
1200 x 1000 mm  
48 x 40 inches

Art. No. 6940 • 6941 • 6942 • 6943 • 6944 • 7042 • 7055 • 7068



(5)

1200 x 800 mm

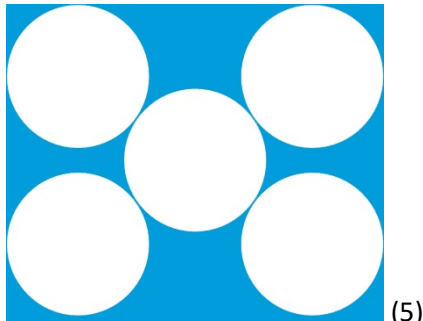


(6)

1200 x 1000 mm

48 x 40 inches

Art. No. 6990 • 6994



(5)

1200 x 1000 mm

48 x 40 inches

**Attention!** Our ex-works palletization is different. Please check our website for more info.

**Disclaimer**

CurTec manufactures packaging material for a wide range of purposes. This declaration is restricted to the packaging material as it leaves the production facility. CurTec has neither control over final end use of the product nor over processing conditions. It is therefore the responsibility of the end user to check compliance with the relevant regulations and to validate material performance in the end application through proper end use testing.

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