

## User Manual

### Handling and Storage Manual

This manual is an introduction for transferring and storage which provided safety for operators and properties. However, the products of Thai Plastic and Chemicals, PCL are in different packaging which has a different transferring and storage method.

For the safety of operators and properties, operators should study this manual to have knowledge and understanding of transferring and storage method before operating to achieve the highest safety.

#### Transferring process

The product must be transferred with the right and proper method and equipments. Moreover, the equipment must be check before using. Forklift must be used for transferring a large number of products. The fork must has length at least the  $\frac{3}{4}$  and not over the length of pallet. The fork must be inserting into the hole of the pallet. Transferring only 1 pallet per time and the forklift capabilities must be sufficient to the product's weight.

Transferring process can be separated by packaging as follow;

#### 1. Transferring process for 25 kilograms packaging

1. Open the container's door by the right and the left side respectively.
2. Move the products from the container by the following method in figure 1;



#### CAUTION

Safety Lifting Method must be considered of weight. If weight over 25 kgs, must used lifting equipment



- 2.1 Hold the middle of the bag by using palm to carry.



- 2.2 Hold it tight and lift it to carry in the allocated area

**Figure 1 : Method of short distance transferring**

1. Put the feet in the right position:  
One foot is parallel to the object,  
another one is in the back side



2. Straight back : Straight back while  
sitting and lifting position



3. Hands adjoin to the body : Both  
elbows adjoin to the body, do not lift  
shoulder



4. Sit and hold the object firmly with  
both hands



5. Hold the chin : Bend the chin to adjoin  
the body while lifting



6. Balance the weight to both side of  
body : Stand up by using leg muscle and  
flex abdomen muscle then balance the  
weight



**Figure 2 : Safety Lifting Method**

3. Arrange paper bag on a palletize and moving to storage area by forklift only  
Arranging format; 5 bags per layer and do not stack over 8 layers as figure 3

Top view

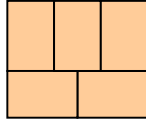


Figure1 : First Layer

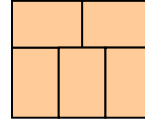


Figure2 : Second Layer

**Figure 3 : Method of arranging paper bag in a pallet**



**CAUTION**

1. Beware of product's falling
2. Always standing behind the door to protect attacking while processing
3. Always wear the brogan while operating Lift with the correct method as mentioned

## **2. Transferring process for 25 kilograms which arrange in a pallet (Palletize)**

1. Open the container's door by the right and the left side respectively.
2. Move the products from the container by using forklift only by holding forklift not over 20 cm to protect the attacking product with the container's ceiling. Forklift's dimension must be fit to the container.
3. Transferring the product to storage area as follow in figure 4;

- 1) Forklift operator insert forks into the holes of pallet until forks closed to pallet edge, inserting the forks more than  $\frac{3}{4}$  but not over the length of pallet



- 2) Lift the forks up a little and drive backward to the storage area.



**Figure 4 : Method of pallet transferring: Paper bag**



### **CAUTION**

1. Beware of product's falling
2. Always standing behind the door to protect attacking while processing
3. Only unloading person in the unloading area. Falling product might cause injury.
4. Forklift's capability must be sufficient to the product's weight.

### **3. Transferring process for 500 – 1,100 kilograms (Flexy Bag)**

1. Open the container's door by the right and the left side respectively.
2. Remove the rope at the end of the container.
3. Move the products from the container by using forklift only by holding forklift not over 20 cm to protect the attacking product with the container's ceiling. Forklift's dimension must be fit to the container.
4. Transferring the product to storage area as follow in figure 5;

- 1) Forklift operator insert forks into the holes of pallet until forks closed to pallet edge, inserting the forks more than  $\frac{3}{4}$  but not over the length of pallet



- 2) Lift the forks up a little and drive backward to the storage area.



**Figure 5 : Method of pallet transferring : Flexy bag**

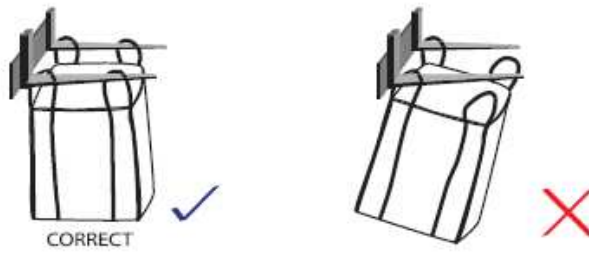


#### **CAUTION**

1. Beware of product's falling
2. Only unloading person in the unloading area. Falling product might cause injury.
3. Forklift's capability must be sufficient to the product's weight.
4. Do not untie the strap before moving

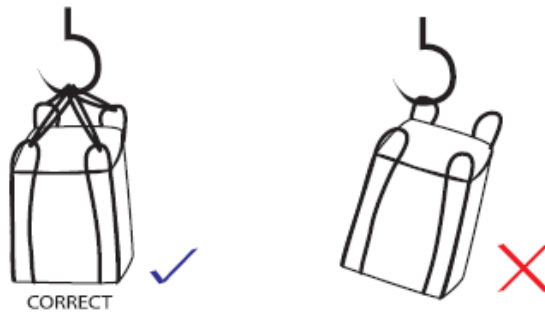
5. The correct method for lifting flexy bag without a pallet.

- 5.1 The fork of forklift must have appropriate length which can hold 4 of strips. The fork must not be sharp that may caused danger to workers and properties.



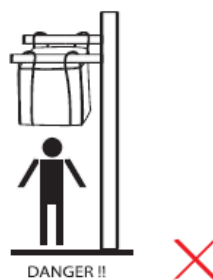
**Figure 6 : Lifting flexy bag by forklift**

5.2 In case using a hook, the hook must be hooked all straps in a balance position.



**Figure 7 : Lifting method by hook**

5.3 For your safety, do not stand under the flexy bag while lifting.



**Figure 8 : Do not stand under the bag's symbol**

#### **4. Transferring process for 17,000 - 18,000 kilograms (Container Liner)**

1. Parking at the unloading point and always put the wheel stopper as Figure 9a)
2. Open only one container door, then open the polypropylene reinforcement sheet covering the discharge tube as Figure 9b)



Figure a) : Ready to unloading containers



Figure b) : Container's door and the correct method of opening the door

**Figure 9 : Preparing of unloading method for container liner**



#### **CAUTION**

For unloading operator's safety, keep one door closed at all times during unloading.

3. Open the hatch on top of the discharge spout, and remove the closing strap mounted on the liners discharge tube to start product flow as in Figure 10a)



Figure a) : Install unloading equipments

4. Now the container is ready to be tilted. Stepwise tilting is recommended at 45 degree as in Figure 10b)



Figure b) : Ready for unloading

**Figure 10 : Installing the unloading equipments for container liner**



5. Inflation airbags are used to remove any remaining product in the rear corners of the liner.

5.1 Lower the container completely and open the left door as Figure 11a

5.2 Blowing air to the Airbag, the Airbag will gradually inflate as Figure 11b and thus move the residual pellets towards the discharge tube as Figure 11c;



Figure a)



Figure b)



Figure c)

**Figure 11 : Method of unloading from container liner : Liner bag**



### CAUTION

The operator should be careful not to inflate too much air into the airbag to avoid the bag to burst.

6. Remove the empty liner bag

6.1 Tilt the container back in a horizontal position

6.2 Remove the discharge spout, frame and the steel bars

6.3 Cut the liner bulkhead on three sides, in order to allow air to evacuate the liner as figure 12a).

6.4 Push the bulkhead into the liner as figure 12b) then fold and remove the liner as figure 12c).



Figure a) Bulkhead



Figure b) Bulkhead latch



Figure c) Fold and remove bag

**Figure 12 : Method of removing of empty liner from container**



## Storage and Arrangement in warehouse

The product must be kept in the safe and secure place. The product's arranging should be accurate and proper method to protect the hazard of product's falling.

### 1. 25 kilograms packaging

1. Prepare plastic sheet or something else on floor to prevent dust
2. Workers arrange paper bag on plastic sheet 6 bags per layer as Figure 13a)
3. In the second layer, arrange opposite of the first layer in Figure 13c)- e)
4. From the third layer to eighth layer, arrange first and second layer and do not arrange over 8 layers



Figure a)



Figure b)



Figure c)



Figure d)



Figure e)

**Figure 13 : Arranging method for paper bag 25 kilograms**



### **CAUTION**

1. Do not store more than 8 layers because it may fall down to other workers in that area.
2. Firmly arranging and must have wall to support the product
3. If the product is inclined, rearrange the product immediately
4. Do not lift the product from the centre of stack. It might be falling and attack the workers.

## **2. 25 kilograms which arrange in a pallet (Palletize)**

### **Condition**

Package	Ton/pallet	bag/pallet	Size (W x L x H) (m)	Layer (Pallet)
Palletize	0.75	30	1.30 x 1.55 x 1.10	2
	1.00	40	1.30 x 1.55 x 1.40	2
	1.25	50	1.30 x 1.55 x 1.70	2
	1.50	60	1.30 x 1.55 x 2.00	2

**Table 1 : Limitation of stacking pallet: paper bag 25 kilograms**

### **Arrangement Method**

1. Storage the first pallet as Figure 14a)
2. Storage the second pallet above the first one as Figure 14b)
3. Storage the third pallet in front of the first one
4. Storage other pallet as pattern in Figure 14c),d)
5. Stored only 1 pallet which is near by the forklift's lane

Side view

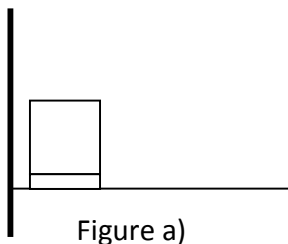


Figure a)

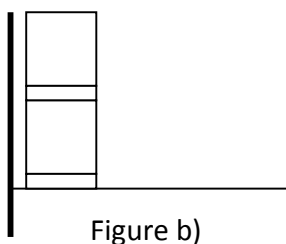


Figure b)

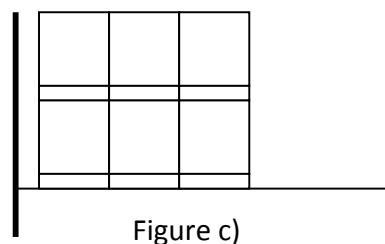


Figure c)



Figure d)

**Figure 14 : Method of arranging the pallet : paper bag 25 kilograms**



## CAUTION

1. Do not stack over 2 pallets, it might be fall down and attack workers
2. Firmly arranging and must have wall to support the product
- 3 If the product is inclined, rearrange the product immediately
4. While lifting and transferring the product. Do not walk or stop in the shade of forklift.

### **3. 500 – 1,100 kilograms (Flexy bag)**

#### Condition

Package	Ton/pallet	bag/pallet	Size (W x L x H) (m)	Layer (pallet)
Jumbo bag (500-550 kg)	1.00	2	1.05 x 1.05 x 1.80	1
	1.10	2	1.05 x 1.05 x 2.00	1
Jumbo bag (1-1.1 Ton)	1.00	1	1.05 x 1.05 x 1.80	1
	1.10	1	1.05 x 1.05 x 2.00	1

**Table 2 : Limitation of stacking pallet: Flexy bag 500-550 kilograms**

#### Arrangement Method

1. Storage the first pallet
2. Storage the second pallet
3. Storage the third pallet after the second pallet
4. Storage other pallet as pattern in Figure 15 and 16
5. Do not stack the pallet

Side view (500-550 kg/bag)

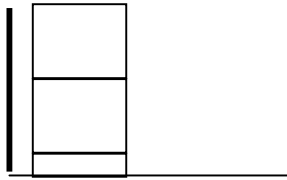


Figure a)

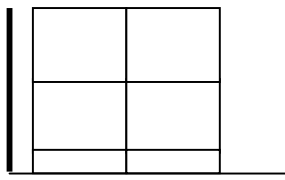


Figure b)

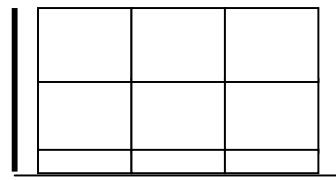


Figure c)



Figure d)

**Figure 15 : Method of arranging the pallet : flexy bag 500-550 kilograms**

Side view (Flexy bag: 1,000 - 1,1000 kg/bag)

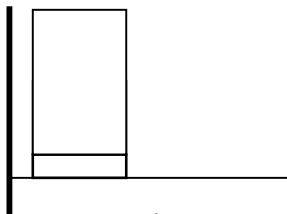


Figure e)

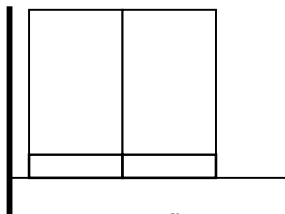


Figure f)

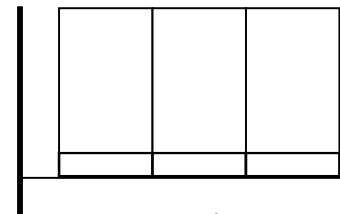


Figure g)



Figure h)

**Figure 16 : Method of arranging the pallet : flexy bag 1,000-1,100 kilograms**



## CAUTION

1. Do not stack, it might be fall down and attack workers
2. Firmly arranging and must have wall to support the product
- 3 If the product is inclined, rearrange the product immediately
4. While lifting and transferring the product. Do not walk or stop in the shade of forklift.

### Product's preparing for Use.

PVC resin is the main raw material for PVC processing; this is how to prepare PVC for processing.

#### 1. 25 kilograms Packaging

Open the bag by pulling the thread at the top of the bag as figure 17 or using the sharp knife as figure 18. Then pour the resin to the process as in figure 17



Figure a) Split 2 sides of the thread



Figure b) Pull the thread by the bag line



Figure c) The bag was opened

**Figure 17 : Opening the paper bag : 25 kilograms**



Figure a) Use knife to open bag of the thread



Figure b) Cut it until the end of bag



Figure c) The bag was the opened

**Figure 18 : Opening the paper bag : 25 kilograms**



### CAUTION

1. Beware of thread or paper's scraps from the packaging contaminate in PVC resin.
2. Always wear dust protector and goggles

## **2. 25 kilograms which arrange in a pallet (Palletize)**

Use a cutter to open the wrap film. Lift the bag from pallet and open the bag by pulling the thread at the top of the bag. Then pour the resin to the process. (same as 3.1)



### CAUTION

1. Beware of thread or paper's scraps from the packaging contaminate in PVC resin.
2. Always wear dust protector and goggles
3. Beware of product's falling while operation
4. Change the blade if it is less sharpen, blunt blade will cause a dust at the cut

## **3. 500 – 1,100 kilograms (Flexy bag)**

By using crane which has a lock to lift the product then hang it. Use pulley hooks with the 4 of strap then lifting over the floor. Move the packaging to the storage then laid the bag on the bracket for release the PVC resin. Untie the rope at the bottom of the packaging then the PVC resin will be unloaded to the storage.



Figure a) Lifting



Figure b) Laid on



Figure c) Unloading the bracket

**Figure 19 : Opening the flexy bag : 500-1,000 kilograms**



**CAUTION**

1. Beware of thread or paper's scraps from the packaging contaminate in PVC resin.
2. Always wear dust protector and goggles
3. Beware of product's falling while operation
4. Do not pass or stand under the product which is lifting by pulley while moving or lifting the product

Produced by:

Thai Plastic and Chemicals Public Company Limited

1 Cement Thai Road, Bangsue

Bangkok 10800 Thailand

For more in formation please contact your Sale Representative  
or Technical Service at +662 586 4468