C & P SUBSTRATES

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COCOPEAT :

COCOPEAT is a natural and renewable resource produced from coconut husks by the coconut industries. Cocopeat is a bi-product when coconut husks are processed for the extraction of the long fibres from the husk. Cocopeat is the binding material that comes from the fibre fraction of the coconut husk. The Horticulture industry often calls the substrate Cocopeat.

SPECIFICATIONS OF COCOPEAT :

Physical :

❖	Ash (dry bais %)	-	1.8 - 2.0
❖	Carbonic exchange capacity (meg / 100 g)	-	60 – 130
❖	Total Organic matter (W/W, dry basis, %)	-	94 – 98
❖	Water Holding Capacity (of dry weight)	-	6 – 8 times
❖	Air filled porosity (v/v %)	-	10 – 12
❖	Total pore space (v/v %)	-	94 – 96

Chemical :

❖ Organic Carbon (W/W, dry basis, %)	-	22 – 26
❖ Electrical Conductivity (mS/cm)	-	0.25 – 0.50
❖ Lignin (W/W, dry basis, %)	-	20 – 25
❖ pH	-	5.5 ~ 6.5
❖ Cellulose (W/W, dry basis, %)	-	16 – 20
❖ Carbon : Nitrogen ratio	-	80 : 1
❖ Nitrogen	-	0.18 – 0.20
❖ Phosphorus	-	0.07 – 0.19
❖ Calcium	-	0.50 – 1.92
❖ Magnesium	-	0.30 – 0.98
❖ Potassium	-	1.80
❖ Ammonium	-	0.10
❖ Chlorine	-	1.50
❖ Micro Nutrients (ppm)		
➢ Iron	-	4140
➢ Manganese	-	160
➢ Zinc	-	42
➢ Copper	-	706

USAGE AND APPLICATIONS OF COCOPEAT

Salient features of COCOPEAT :

- It is 100% organic
- High water holding capacity (Min. 15 Litres per Kg.)
- Excellent drainage
- Superior wettability
- Optimum air filled porosity
- Nutrient Absorption quality
- Free from insects and pests
- Contains no pathogenic micro organisms
- Absolutely free from Nematodes
- Marvelous aeration

Serves as Nutritious Media when beneficial micro organisms are inoculated in cultivation. Amazingly enhances soil humus and supplies plant nutrients including micro nutrients.

Major Applications of COCOPEAT

1. **Seed Germination :**

Use 100% Cocopeat. Take Cocopeat in a tray and wet it preferably with a fungicide. Sow the seeds and cover the seeds with a thin layer cocopeat. Expose the seedlings to mild sunlight after germination, transplant when ready.

2. **Routing of Cuttings :**

Mix 50% washed sand or expanded perlite and 50% of Cocopeat, wet the mixture with fungicide plant the cuttings and firm the media all around. Keep the media wet till rooting is achieved.

3. **Potting Mix :**

Mix one part of Cocopeat, one part of medium grade sand and one part of Red earth other additives like neem cake, manures and fertilizers can be used as per requirement.

4. **Soil Conditioning :**

Incorporate Cocopeat in the ration of 1:4 i.e. 1 part of Cocopeat to 3 parts of soil. Dig the soil to a depth of 1 feet and mix Cocopeat in the ratio 1:4. More over it acts as soil ameliorant for problematic soils.

5. **Growing Roses and other Plants** :

Spread the Cocopeat at the rate of 25 to 40 Metric Tonnes per acre and mix it to a depth of 10 inches before planting.

6. **Laying of New Lawn** :

Dig soil to depth of 1 feet spread pebbles at the bottom. Add sand to a depth of 1 inch add mixture of 1 part sand and 1 part Cocopeat wet the media and plant the lawn. After the lawn starts sprouting add one layer of plain sand and level using a light roller, using soil manures neem cake etc. is optional.

7. **Vegetable and Flower Beds** :

Prepare a maximum of 2 Parts of Cocopeat, 1 part of earth, 1 part sand and wet the media. Transplant the seedlings into this media and water. Add fertilizers manures, etc. as and when required.

8. **Hardening of Tissue Cultures Plants :**

Use 100% Cocopeat in pro-trays for hardening of Tissue Culture Plants.

9. **Hydroponic Systems :**

Fill trenches of 300 x 300 x 300 mm with Cocopeat washed (with fibre of 50 mm size). The trenches may be elevated on steel pedestals. The plants like Roses, Gerbera, Capsicum, etc. are planted after wetting the media Drip are places about 25 mm form the stem, water and liquid fertilizers are given to the plants by drip. The plants are staked whenever necessary by the over head hanging lines. It has been observed that the pith undergoes deterioration in texture in about 18 – 20 months. This is regenerated by amending with cut fibres or perlite. By this way, the life of the media can be extended by another two years.

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QUALITY MANUAL FOR COCOPEAT

SCREENING

Matured pith has been screened to produce uniform coarseness of material. To assure a clear definite texture for the pith so if it is ¼" mesh then the output should be ¼", ½" means ½".

Things to be noted on the screening Process :

Before screening break the lumps for best results and maximum output. Control and optimize the feeding rate of pith to avoid fibre contamination in the screened pith.

Make note of wind direction and frequently check the mesh for presents of any holes / loosened nuts / some unscreened pith.

Speed of the sieve has to be optimized as per production situation.

DRYING

While drying make sure that there is no contamination in the dry yard by any source.

Wash it sweep it.

If the dry yard and meant for treated pith only, then the chance of degradation of quality is very minimum or Nil. Other wise clean it property he dry the treated pith. During drying do not use any mechanical vehicle very often inside the dry yard as it may cause damage to the structure of the pith.

Do not squeeze the material to shorten the drying time because it kills the life of the pith by destroying its air pockets.

Direction of wind velocity of wind should be taken into account to avoid wind borne contamination in the dry yard.

After drying heap the dried pith for some time. To dissipate the heat of the pith.

Then draw samples, 5 sample and test it for EC, pH, Sand %, and so on.

Once the results are good. Go for baling. Allow the pith for processing. The relevant values have to be properly recorded in the Dry material analysis register respective bunker number, dry yard number and date etc. To add the value of the register it is good to incorporate temperature, rain fall and climatic condition in the same register.

COMPRESSING

Before Compressing :

Check for chemical qualities like EC, pH for washed pith.

Check for physical quality like moisture content, soil, BD etc.

Ensure the pith is free from foreign material before processing pith should pass on all the physical chemical and microbiological determinants.

If necessary subject the dry pith for fibre sieving or fine sieving.

Compression ratio should 5 : 1

After Pressing :

Bale is subject to break out volume test and record in a register. Irrespective of packing whether it is a bale / brick it should be an individual piece with proper weight and should have smooth surface on all sides.

The bales should not be over expanded or splitted or over compacted because of low, high, very high moisture content as the case may be look of the above and decide its eligibility for shipping.

All together it should be good looking piece an if the labours involved in the pressing are vigilant over the spotting of foreign matter in the pressed pieces that is wonderful.

PALLETIZING

Pallet should be made up of wood free from pest infestation and it should be properly treated with International Standards of Pest Control procedure. No way the pallet should have bark portion of the wood so take care of this in all shipments.

While you are palletizing the bales properly staked on pallet and well positioned by nylon straps with stretched and wrapped with poly bag.

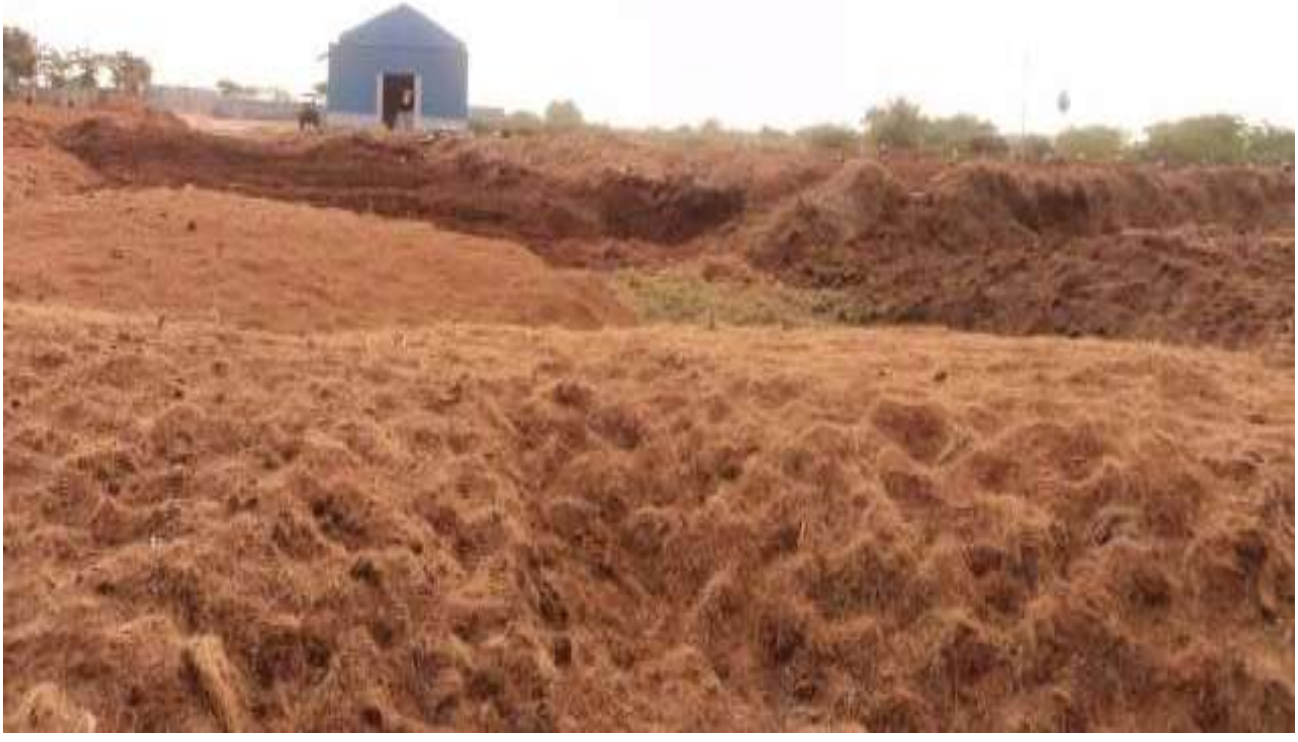
Palletizing should be done in proper manner so that it can with stand its structure till it reaches it destination and final user.

Each and every pallet should have proper label to know its content.

Pallet No.	:	……..
Product	:	……..
EC	:	……..
Break out Volume	:	……..
Number of Bales	:	……..
Net Weight	:	……..

RAW MATERIAL COLLECTION

RAW MATERIAL STORAGE FOR 6 to 9 MONTHS MINIMUM



AFTER 6 MONTHS - WASHING

DRYING IN CEMENT FLOOR

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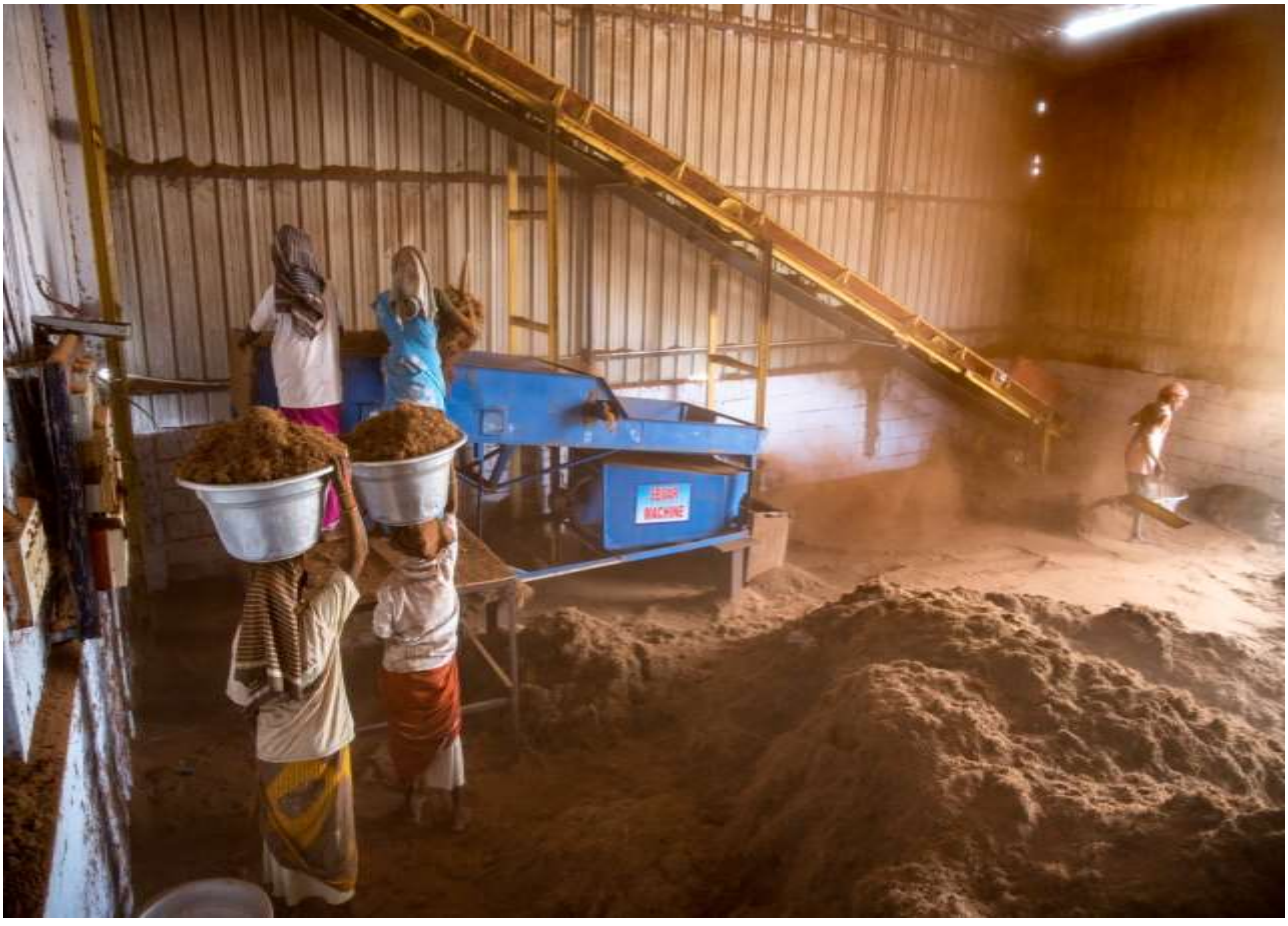
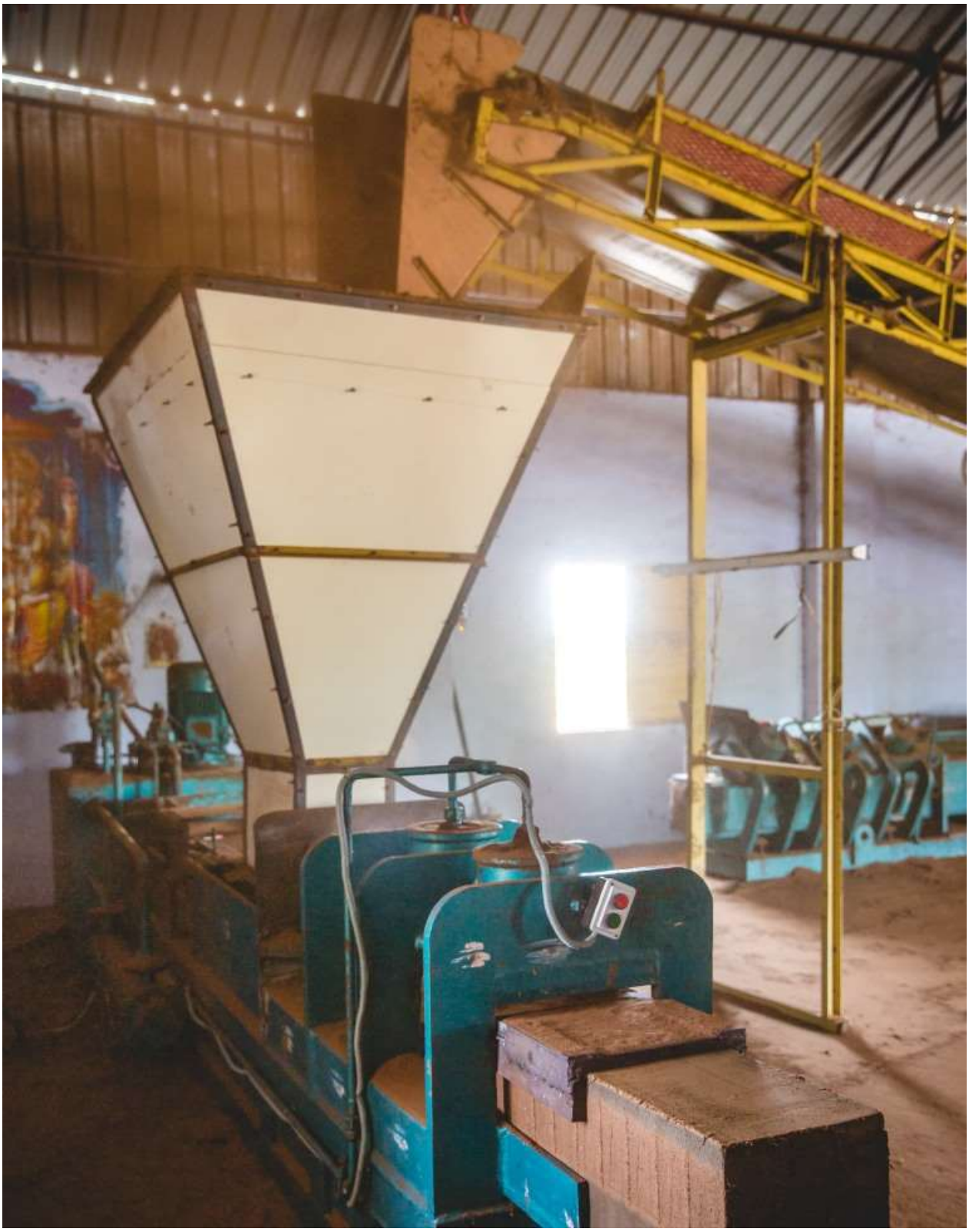
DRYING IN CEMENT FLOOR

1st Screening

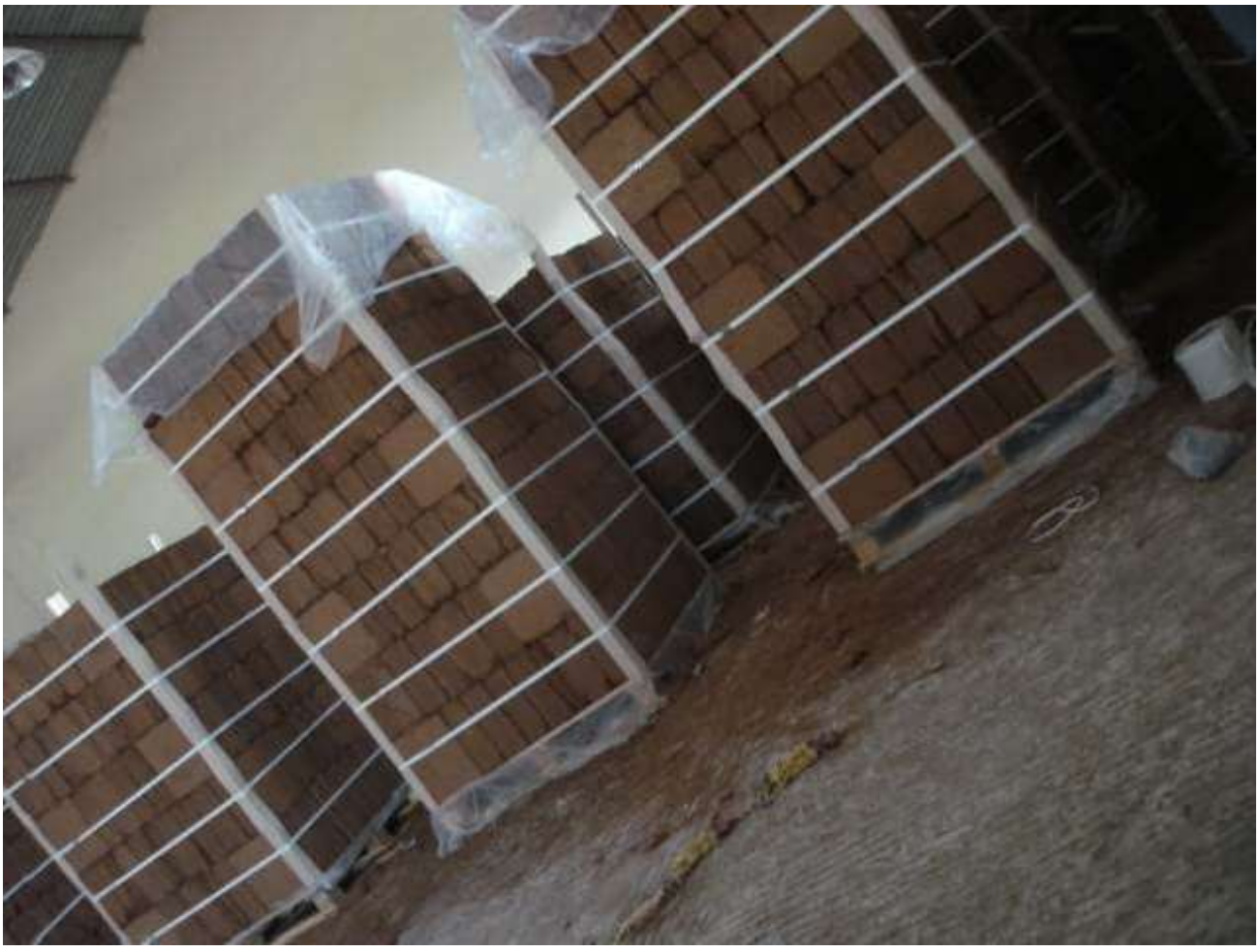


2nd Screening

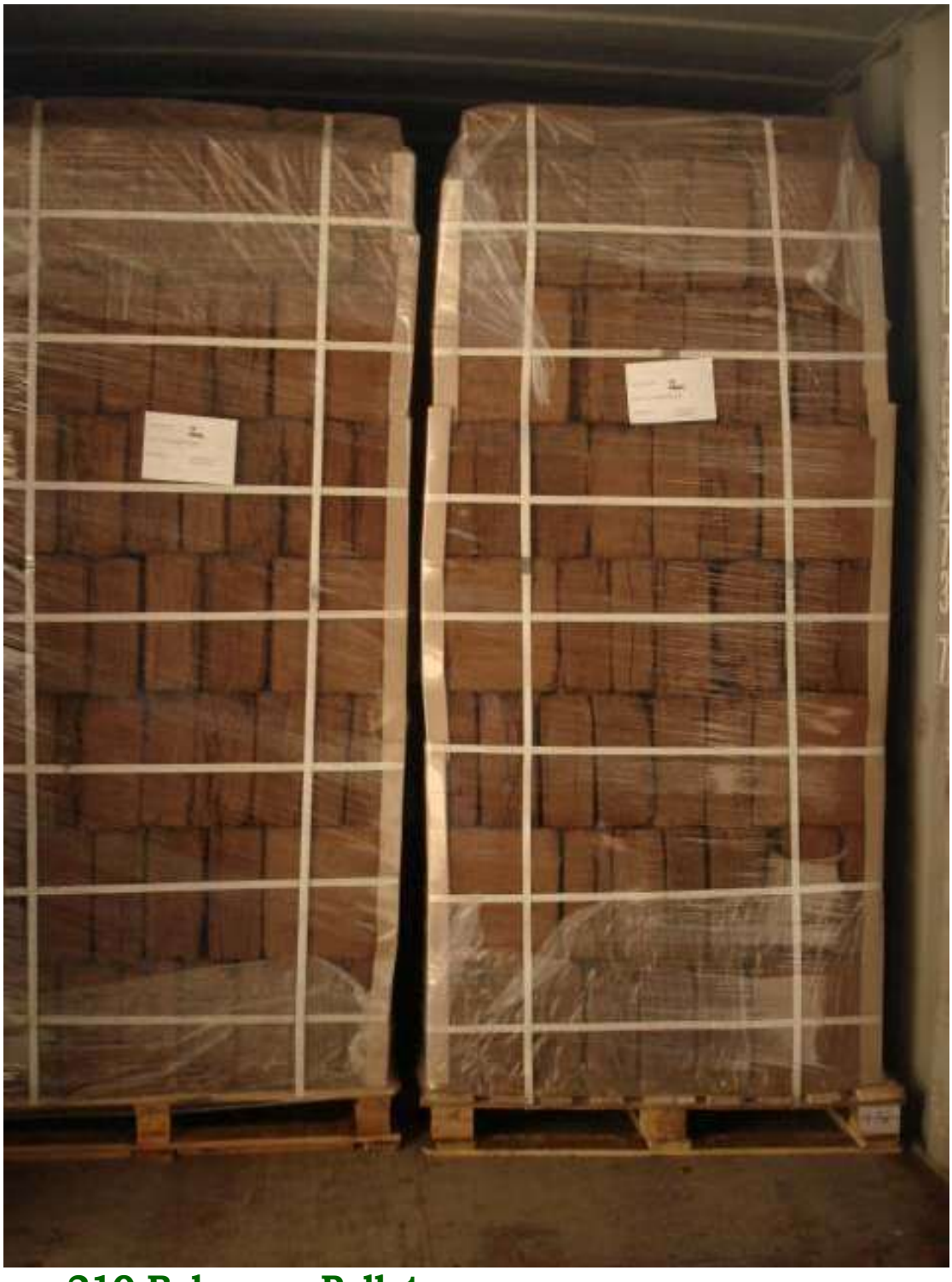
COMPRESSING MACHINE



PALLET PACKING

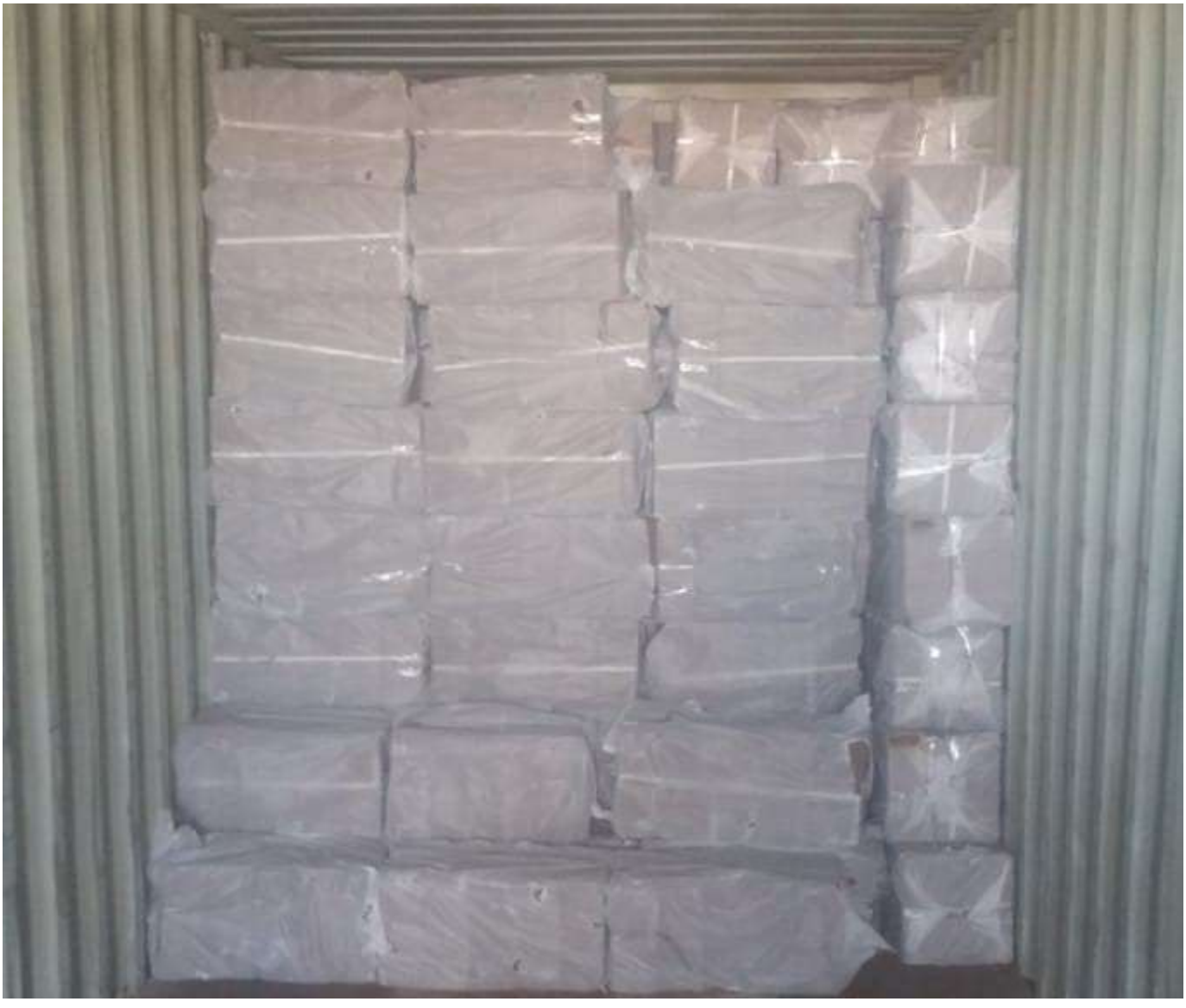


PALLET PACKING



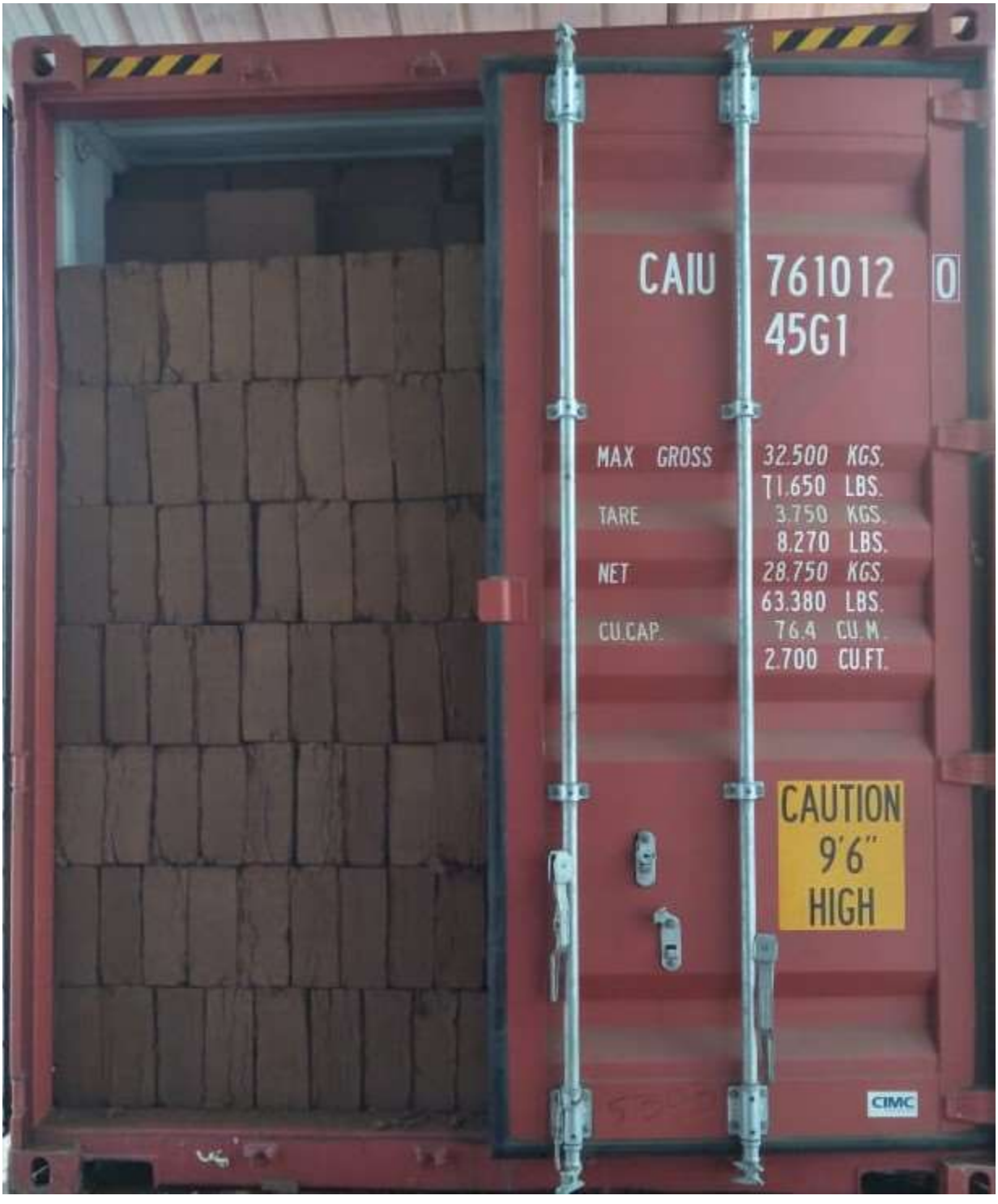
210 Bales per Pallet
22 Pallets x 210 Bales = 4620 Bales
4600 Blocks x 5 Kg. = 23.00 MT Per 40’ HC Container

BUNDLE PACKING



4 BLOCKS IN 1 BUNDLE
1350 BUNDLE IN ONE CONTAINER
1350 BUNDLE X 4 BLOCKS = 5600 BLOCKS
5600 BLOCKS X 5 KG = 28.000 MT
28 MT PER 40' HC CONTAINER

BULK LOAD (FLOOR LOAD) PACKING



BULK LOAD (FLOOR LOAD) PACKING

5600 BLOCKS IN ONE CONTAINER
5600 BLOCKS X 5 KG = 28.000 MT
28 MT PER 40’ HC CONTAINER

Thank you!