

## Handling and Storage of Palm Oil Product

- 1: Recommended temperature range during transportation and at a time of loading/discharge of palm oil products.

Products	Temp. during transportation		Temp. during loading/discharge	
	Min (°C)	Max (°C)	Min (°C)	Max (°C)
Palm Oil (Crude/Process)	32	40	50	55
Palm Olien (Crude/Process)	25	30	30	35
Palm Stearin (Crude/process)	40	45	55-60 <sup>a</sup>	65-70 <sup>a</sup>
Palm Kernel Oil (Crude/Process)	27	32	30	35
Palm Kernel Olein (Crude/Process)	25	30	30	35
Palm Kernel Stearin (crude/Process)	32	38	40	45
Palm Fatty Acid Distillate /Palm Acid Oil	52	55	55	70
Palm Kernel Fatty Acid distillate	27	32	30	35

- a. The lower temperatures apply to soft grade while the higher temp is necessary for hard grade. The temps apply for both crude and processed palm oil (PORAM Brochure)

### 2: Recommended Material of construction

- I: All material used in construction of tanks and for ancillary equipment (including heating facilities) should be inert to oils and fats and should be suitable for use in contact with food.
- II: Stainless steel is generally most preferred material for construction for crude and semi-refined oils and fats.
- III: Existing mild steel tanks can be coated with an inert material on the inside such as phenolic epoxy resin.
- IV: Stainless steel lining of existing mild steel tank can also be considered for good economic solution.

V: Temperature gauges/thermometers containing mercury should never be used.

VI: Heating coils and stirrers should also be made of stainless steel (without copper in the alloy).

3: Recommended Storage Temperature<sup>b</sup>.

Products	Storage Temperature	
	Min (°C)	Max (°C)
Palm Oil	37	45
Palm Olein	30	35
Palm Stearin	55	60
Palm Kernel Oil	32	37
Palm Kernel Olein	30	35
Palm Kernel Stearin	37	43

*b.* Draft food safety guideline

Long term storage (> 2 weeks)

Long term storage should be maintained at ambient temperature and heating should be completely turned off. If the oil becomes solid, extreme care should be taken during the initial heating to ensure that localized overheating or pressure build-up does not occur.

Short term storage (< 2 weeks)

To prevent excessive crystallization, the oil should be maintained within the temperature range of 5-10 °C above melting point. Refer to the above table.

The deterioration of oil quality cannot be stopped completely. We can only use certain precautionary steps to minimize deterioration as mentioned above.