PALM-BASED SKIN CARE AND COLOUR COSMETIC PRODUCTS

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MPOB TT No. 271 - Palm-based anti-wrinkle lotion
MPOB TT No. 272 - Palm-based liquid foundation with SPF 13
MPOB TT No. 273 - Palm-based compact powder with Vitamin E
MPOB TT No. 274 - Palm-based compact paste with Vitamin E

These ranges of products (*Figure 1*) are targets for ≥ 35-age market segments. The function of these products is to cover natural fine wrinkle on faces as we age or prematurely age. The premature skin is due to overexposure to sun, environmental, pollutants cigarette, smoke, fluctuations in temperature and humidity. Ultraviolet radiation through sun exposure can dehydrate the skin due to generation of harmful substances called *free radicals* which are strong oxidizing agents. Smoothness and suppleness of the skin is modulated by the amount of surface moisture content and elastic tissue such as collagen. Free radicals can potentially damage DNA, the genetic material required for making protein as well as collagen, resulting in the loss of skin tone and elasticity. Marine collagen is one of the actives that can be use to repair the damage skin, restoring the cutaneous surface (Kimura *et al*., 1988; Montero *et al*., 1990; Sato *et al*., 1989a, b). Therefore, the palm-based anti-wrinkle lotion and palm-based liquid foundations SPF 13 enriched with the collagen were developed. The palm-based compact powder and palm-based compact paste are commonly used for the final touch to balance the skin face tone. They are available in three colour tones, *i.e.* light, beige and tan. The amount of palm-based derivatives used in the formulations is from 35% to 48% for palm-based anti-wrinkle lotion, liquid foundation and compact paste. As a binder in compact powder, 5% of palm-based derivatives were used.

THE PROPERTIES OF PALM-BASED ANTI-WRINKLE LOTION, LIQUID FOUNDATION SPF 13, COMPACT POWDER AND COMPACT PASTE

The properties of the palm-based anti-wrinkle lotion, liquid foundation SPF 13, compact paste and compact powder were measured for pH, SPF (sun protection factor) value, storage stability and rheological properties. *Table 1* showed that all of them were stable after three months storage. *In vitro* study, the palm-based anti-wrinkle lotion has a mean SPF of 8 with moderate protection against UVA, the palm-based liquid foundation has a mean SPF of 13 with a good protection against UVA and the compact paste has a mean SPF of 2 having maximum protection against UVA. The pH values ranged from 5.7 to 7.3, which is suitable for skin pH in a smooth and soft base. *Figures 2* and *3* showed a plot of viscosity and shear stress versus shear rate of the palm-based anti-wrinkle lotion, liquid foundation SPF 13, and compact paste. In terms of viscosity, all of them showed shear thinning properties [fluids or emulsions show a decrease in viscosity as shear rate (1 s^{-1}) increase]. The tau (yield) values were obtained from the shear stress plot when the network structure

Figure 1. Palm-based anti-wrinkle lotion, palm-based liquid foundation with SPF 13, palm-based compact paste with vitamin E, palm-based compact paste with vitamin E and palm-based compact powder.

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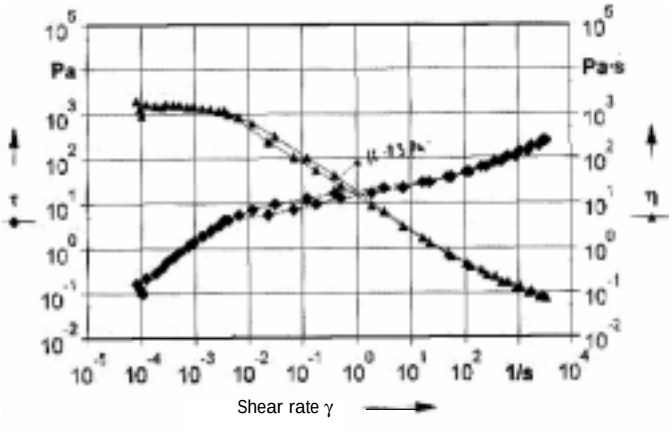
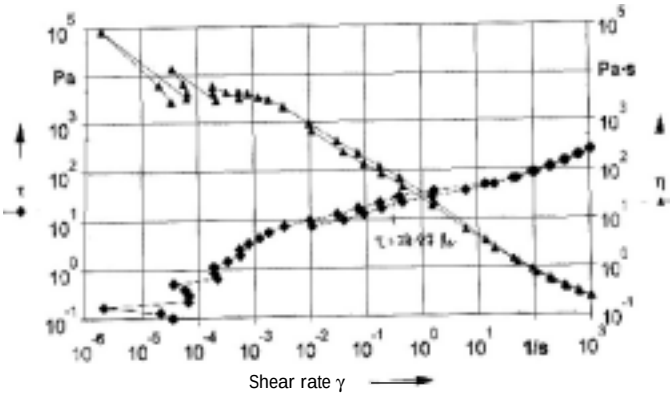
TABLE 1. PHYSICAL PROPERTIES OF PALM-BASED ANTI-WRINKLE LOTION, LIQUID FOUNDATION SPF 13, COMPACT PASTE AND COMPACT POWDER VERSUS COMMERCIAL SAMPLES (COM)

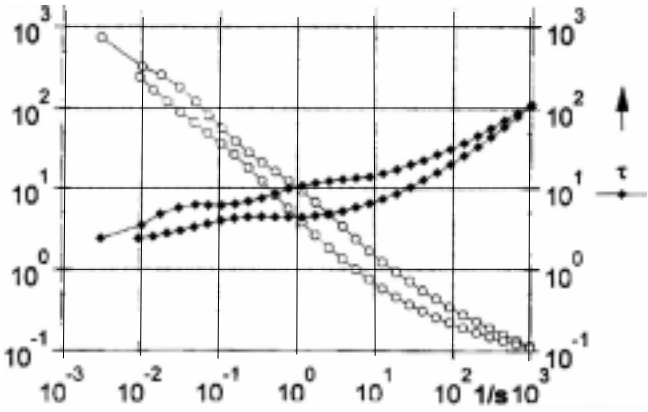
Evaluation	Anti-wrinkle lotion	Liquid foundation SPF 13	COM1	Compact paste	COM2	Compact powder
Stability test (RT, 45°C and freeze/thaw)	Stable	Stable	Stable	Stable	Stable	Stable
SPF value	8 + (moderate)	13 + (good)	6+ (moderate)	2+ (maximum)	15 (good)	-
pH	5.74	6.79	7.30	-	7.00	-
tau value	16.8 Pa	28.9 Pa	9.8 Pa	37.8 Pa	4.37 Pa	-



Palm-based anti-wrinkle lotion

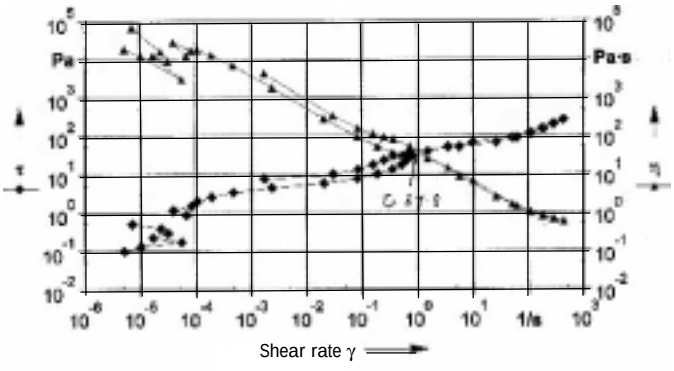


Palm-based liquid foundation SPF 13

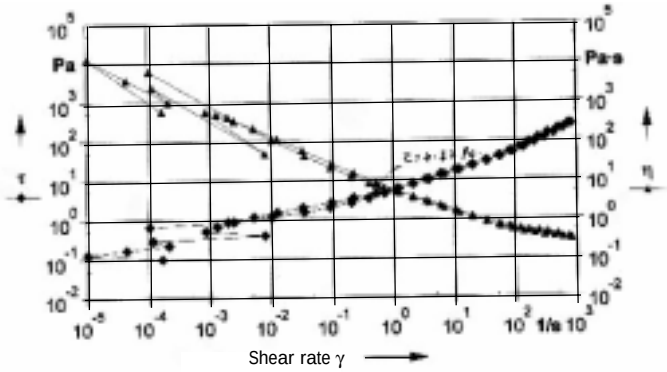


COM1

Figure 2. Palm-based anti-wrinkle lotion, liquid foundation SPF 13, versus COM1.



Palm-based compact paste with vitamin E



COM2

Figure 3. Palm-based anti-wrinkle lotion, liquid foundation SPF 13 versus COM 2.

starts to break down. The overall result showed that these values varied from one to other products. The higher the tau values indicated the better is the strength of networking in the formulated products and therefore prolong the shelf-life.

ADVANTAGES OF PALM-BASED ANTI-WRINKLE LOTION, LIQUID FOUNDATION SPF 13, COMPACT POWDER AND COMPACT PASTE

- Formulated to the skin pH and in a smooth and soft base;
- Enriched with marine collagen to restore the cutaneous;
- Enriched with vitamin E as antioxidant to reduce irritation and neutralize harmful free radicals that can cause premature skin aging and wrinkles;
- Enriched with sunscreen agent to block harmful radiation from sunlight;
- By *in vitro* method, SPF value varies depending on the application of the products;
- Spread smoothly, easily and covers well without tacking after feel on the skin; and
- Having high tau value indicating prolong stability.

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