

# J PEARL LIQUID FOUNDATION

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JUNE 2003

214

MPOB TT No. 203

MPOB INFORMATION SERIES

ISSN 1511-7871

**P**earls are formed inside the shells of oysters. Oysters and other shell-forming molluscs make a special substance, called *nacre* (pronounced NAY kur) that lines the insides of their shells. This smooth lining is called the *nacreous layers*, or *pearly layer*, and it is often lustrous. It is formed by cells from a fleshy body organ called the mantle. When a foreign substance, such as a bit of shell or a tiny parasite, enters the body of the mollusc, the mantle cells begin to work. They cover the invading substance with thin sheets of nacre. They build successive circular layers of nacre until the foreign body is enclosed in the shell-like substance, forming the pearl. The layers are made up of little crystals of a mineral substance called aragonite, a form of calcium carbonate. They are rather soft, absorb and reflect light (Diversified Medical resources).

Pearl powder was used in ancient China by empresses and women in high society as face make-up. When taken internally, it resulted in improved complexion, softer skin and a more youthful appearance. Since then, pearl powder has been used as a formula to impart firmness and diminish lines and wrinkles (Diversified Medical Resources; Vanniya Sriangura, 2002).

Edmond Fremy (1855) reported that the pearls contain minerals and calcium carbonate. These are interspersed by a matrix of amino acids called conchiolin. According to Charlotte Jensen, Juvena and La Prairie of Switzerland, an international skin care brand, conchiolin is composed of amino acids that act as natural moisturizers and can help replenish the skin's own amino acids that are lost over time. Furthermore, it can support the production of



Figure 1. J Pearl Liquid Foundation.

collagen and enzymes (Vanniya Sriangura, 2002). Besides, other compounds are also found in pearl as shown in Table 1.

Pearl powder is commercially available. Herba Al-Nabawiy Enterprise is interested to incorporate pearl powder into a range of cosmetic product including liquid foundations as its specialty. On 28 January 2003, an exclusive agreement to formulate the cosmetic products was signed between MPOB and Herba Al-Nabawiy Enterprise. This paper reports the technology of incorporating pearl powder into emulsion containing 57% palm-based materials to be marketed as J Pearl Liquid foundation. They are available in two colour shades, *i.e.* light and medium type.

TABLE 1. COMPOUNDS IN PEARL POWDER

Compounds in pearl powder				
Vitamin B complex	Polysaccharides	Calcium	Magnesium	Zinc
Selenium	Silicon	Titanium	Strontium	Copper



**TABLE 2. PHYSICAL PROPERTIES OF LIQUID FOUNDATIONS AND COMMERCIAL SAMPLES**

Evaluation	LF 1	LF 2	COM1	COM2	COM3
Stability test (RT, 45°C and freeze/thaw)	Stable	Stable	Stable	Stable	Stable
SPF value	12 +	12 +	None	None	6+
pH	7.0	7.3	7.0	7.0	7.3
Viscosity (mPas)	183.5	213.6	183.8	428.2	555.8
Hysteresis area (N.m.1/s/m <sup>3</sup> )	22.01	20.11	9.82	15.31	29.50

**J PEARL LIQUID FOUNDATION EVALUATION**

Two colour shades of liquid foundations were developed and coded LF1 and LF2. Their physical properties were compared against commercial samples (COMs) as in Table 2. LF1 and LF2 were stable under all conditions after storage for three months. By *in vitro* method, these liquid foundations were found to have SPF value of 12+ and acceptable by this company. The pH values ranged from 7.0 to 7.3, which were comparable to COMs. In terms of viscosity (at 230 shear rate), LF1 and LF2 exhibited the same viscosity as COM1 but higher viscosities compared to COM2 and COM3 and accepted by the company as they are easy to apply and spread smoothly. All of them showed shear thinning properties. The hysteresis areas obtained from shear stress plots indicate the energy required to break down the network structures of the materials. LF1 and LF2 have strong network like structures, as high energies were required compared to COM1 and 2. COM3 has the strongest network like structure. The results showed that LF1 and LF2 have energy value of 22.01 and 20.11 N.m.1/s/m<sup>3</sup> respectively, which fell between 9.82 to 29.50 N.m.1/s/m<sup>3</sup> of COM1, 2, and 3 giving good properties in terms of ease of application and adsorption onto the skin.

**ADVANTAGES OF PALM-BASED LIQUID FOUNDATION WITH PEARL POWDER**

- Incorporates 57% of palm-based materials;
- Contains natural moisturizer, proteins and vitamin B complex (Diversified Medical Resources)
- Imparts firmness, diminish lines and wrinkle of the skin (Vanniya Sriangura, 2002; The World Book of Encyclopedia, 1990);
- Has SPF value 12; and
- Spread smoothly, easily and covers well without tacky after-feel on the skin

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