

How a Leading Noodle Producer Can Add Value to Soap Marketers in Meeting the Challenges of Soap Trends

Theo Vervoort* and Hng Chin Hing*

INTRODUCTION

The Asian bar soap market is expected to grow at a very healthy rate of 5%-6% over the next five years. In comparison, in Europe, there is negative growth and the bar soap market has been on the decline. Hence, the Asian bar soap business is a very interesting market for current and new entrants with a market size of 1 700 000 t of toilet soap or 17 billion pieces of toilet bar soap of 100 g.

The bar soap has evolved over the years from a purely cleansing product to a product that now offers multiple benefits and functionality. This trend is driven by:

1. the need to continuously differentiate against the onslaught of liquid shower gel;
2. the need to move from a mass market position to a more niche and specialized position;
3. commercial reason as new soaps allow for higher pricing; and
4. continuous use of innovative technology to produce new soap variants.

As a consequence, the bar soap is continuously being challenged to provide more value-added features in the area of multifunctionality. Some clear bar soap trends are as follows:

1. soaps with extracts, oils and polyols, such as honey oil, chamomile, tea tree oil, *etc*;
2. soaps that offer personal protection and hygiene such as in the anti-bacterial domain;
3. soaps that provide skin care properties such as moisturizing, mildness, *etc*;
4. soaps with a combination of mild synthetic detergents; and
5. soap bars with distinctive appearance, perfume impact and release, and bar feel.

Looking at these trends, the question is how can soap base (noodle) manufacturers provide a

solution. Traditionally, this group of manufacturers are rather conservative in its approaches. Most of them still follow the traditional soap making process and employ the same basic raw materials. Therefore, as a leading soap base producer, we believe the soap base can be formulated in such a way that we help the soap finisher and eventually the soap marketers in meeting the multifunctional challenge. We would like to present a few examples on how this can be done.

BAR SOAP WITH INGREDIENTS

At the moment, the soap finisher merely adds small quantities of ingredients or additives in the process of making the bar soap. There are two reasons for this - the first is cost as a lower dosage means a cheaper end formulation, and, secondly, a low dosage reduces the processing issue and major modifications to the plant. To obtain real efficacy and performance improvement, a significant dosage of ingredient is necessary. This brings us to the processing issue whereby increasing the dosage would affect the in-use properties of the finished bar such as foaming and rate of wear.

* Uniqema Asia Pacific, Level 13A, Menara John Hancock, 6, Jalan Gelenggang, Damansara Heights, 50490 Kuala Lumpur, Malaysia.



Soap noodles.

Moreover modification of the finishing line is often required to ensure that throughput and yield are maintained. Coupled with the fact that modification on any stage of the finishing line entails substantial capital investment.

In this respect, the challenge for soap base (noodle) manufacture is to come up with a multifunctional soap base that:

1. can be processed in a conventional finishing line without major modification;
2. enhance the active ingredients effectively and hence, economically;
3. provide good in-use performance;
4. offer improved efficacy; and
5. impart a pleasant skin feel, good perfume release and impact, and appearance.

In the following examples, we would like to demonstrate that with a single multifunctional soap base, improvement can be seen in three types of application.

Multifunctional Soap Base Providing Enhanced Efficacy

Of late, the trend towards anti-bacterial products seem to be gaining momentum. The bar soap is riding on this trend too. But the challenge is how the marketers can

differentiate its anti-bacterial claim better than others. One of the means is by improving the efficacy of bar soap which consumers can relate to, that is better and more effective personnel protection against harmful bacteria.

In the anti-bacterial arena, the common anti-bacteriastats added are triclosan and TCC. Hence, in this example, we have used both triclosan and TCC in the bar soap.

The result is shown in *Table 1*. The comparison is between the anti-bacterial activity of multifunctional soap versus a control. The control was a standard 80/20 soap with the same amount of triclosan as the multifunctional soap. A microbiological test showed

that the anti-bacterial soap bar made from multifunctional soap noodle was more active than the standard 80/20 soap.

The second example showed the activity of anti-bacterial soap made from multifunctional soap base as compared to a major brand name. This commercial soap bar claimed to contain 0.3% TCC. With similar amount of TCC in multifunctional soap, the activity of TCC was enhanced.

The tests were conducted by a reputable third party research laboratory in Malaysia.

Multifunctional Soap Base Combining with Syndet

Generally, syndet or combo bars are claimed to be mild (milder than pure soap). Syndet bars were introduced in Germany for people for skin complaints; because of this medical image, these bars are sold only in pharmacies.

A syndet bar composes of synthetic detergent, and filler to function as structural and plasticiser, whereas combi bar composes of natural soap as both structural and plasticiser.

Syndet bars are found poorly suited to a conventional soap finishing line. The operating condition of syndet formula is often very tight (due to the nature of syndet) and the bars are often sticky to be plodded and stamped on a conventional line.

TABLE 1. INHIBITION ZONE TEST (test bacteria strain: Staphylococcus aureus ATCC 25923; incubation: 24 hr at 37°C)

Test sample	Inhibition zone (mm)	No. of tests	Standard deviation
Blank soap (without triclosan and TCC)	7	9	0.20
80/20 soap base + 0.2% triclosan	20	9	0.14
Multifunctional soap base + 0.2% TCC	23	9	0.18
Multifunctional soap base + 0.3% TCC	18	27	0.65
A popular soap brand (contains 0.3% TCC)	13	27	0.41

Notes: (1) - An inhibition zone more than 7 mm is considered positive.
 (2) -The chemical names of triclosan - 2,4,4' trichloro - 2'-hydroxy-diphenyl-ether.
 TCC = 3,4,4' - trichloro-carbanilide.

Development of a syndet bar with acceptable soap-like in-use properties is hindered by the physical properties of the syndet. Syndet bars tend to be very mushy with a high rate of wear compared to traditional soap bars.

Capitalizing on the benefit of syndet for its mildness and soap for its processibility and in-use properties, combination bars (combo or combi) were developed. Combo soap usually contains 10%-50% mild syndet. Currently, the mass market combo bars are mostly made by multinational companies using *in situ* manufacturing process (integrated syndet and soap plant).

The alternative for a normal bar producer is to add syndet to the soap noodles in the soap finishing line. However, owing to high solubility of syndet, a high dosage of syndet in combo bars is very difficult to process on a conventional soap finishing line. Besides stickiness, adding syndet to soap often yields gritty (sandy) bars. Grits are hard soap and syndet

particles in bars give an unpleasant sandy feeling during use.

Grit is often cited as a barrier in attempts to make good combo bars. The following example demonstrates that the gritty bar problem can be overcome using a multifunctional soap base instead of a standard soap base. Both the test sample and control contained the same amount of syndet and were subjected to the same processing condition. Experiment showed that the bars made from the multifunctional soap base were free of grit compared to the control. In accordance to this test method (developed by Uniqema), grit counts of less than 25 per sq. cm is considered grit free (*Table 2*).

Multifunctional Soap Base with Liquid Ingredients

An effective skin care soap should normally contain a high content of liquid ingredient such as polyol and emollient oils. Therefore, the soap base used must be able to *contain* this high loading without

impairing the processibility of the soap. Once again, we used the multifunctional soap base here.

A comparative experiment was conducted to demonstrate the relative processibility of a multifunctional soap base with 12% polyol against the standard 80/20 soap base with a similar amount of polyol. Processibility is defined as a function of throughput, stamping rate and speed of reaching homogeneity.

The result showed that the process efficiency of the multifunctional soap base was about 30% above the standard 80/20 soap base.

CONCLUSION

The above only showed three aspects of application but other potential properties of the multifunctional soap base are distinctive appearance, good perfume release and impact, excellent skin feel and so on. These would be the other value-added benefits for the soap marketers to exploit.

In summary, by having a single soap base with multifunctional capability built-in, it is easier, faster and more cost effective to launch and market new variety of products that meet the bar soap trends.

TABLE 2. GRID CONTENT

Sample	Grit count
Control (80/20 soap noodle +20% syndet)	More than 50 per 12 sq cm
Prototype (multifunctional soap noodle + 20% syndet)	Less than 25 per 12 sq cm

Notes: The grit count was done using the Uniqema Test Method. Syndet used sodium lauryl sulfosuccinate.