

## REPORT OF THE STUDY ON THE MARKET ACCEPTANCE OF LATZ LATEX

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### SYNOPSIS

In the past two three decades or so research and development in the latex processing industry and its application to produce different end products have enabled the industry to provide better and less expensive standard products. The work actively being pursued by Malaysia in this regard particularly to improve the properties and qualities of latex concentrate is remarkable. Because of the relentless efforts, the country has developed different types of latices like LATZ latex, Hydroxylamine treated latex, High drc latex etc. which are suited to the changing requirement of latex consuming industry. Of this, LATZ latex concentrate was well received by the consumers. Statistics of concentrated latex in Malaysia shows that more than 60% is of high ammonia type (HA) in past, and in recent years the trend has been towards the use of low ammonia latices (LA), mainly LATZ type. Recognising the merits of using this latex, the Rubber Board in India at its centrifuging factory has developed know how suited to Indian conditions for the production of low ammonia preserved latex (LATZ latex) and started its commercial production. This low ammonia latex possesses all the desirable qualities of HA latex concentrate without the adverse

effects of high ammonia. Some of the consuming units have already started using this material regularly. However, this does not mean that LATZ latex has been readily welcomed and widely accepted in the market. Still there is quite a lot of ignorance about this rubber, particularly about its advantages among the small and medium consumers. Similarly there are people yet to be convinced about the need for change in latex processing. In order to dispel such doubts and to make the consumers aware of this product a market study was conducted and its findings are summarised in this report.

### LATZ LATEX

Low Ammonia-TMTD/Zinc oxide Latex popularly known as LATZ is a modern marketable form of 60% concentrated latex with certain distinct advantages over the standard high ammonia latex concentrate. The specifications of LATZ latex are exacting. It has the same properties of concentrated latex and allow the consumers free from hazards.

### ORIGIN AND GROWTH

The research work done in latex processing industry by Malaysia bore fruitful results and they came out with LATZ latex in 1975. However, the product was developed and popularised only in eighties. In 1980, the annual

consumption of low ammonia latex exceeded 40,640 tonnes (dry weight). Now it has increased and understood that over 15% of the total concentrated latex produced in Malaysia is in the form of LA latices.

### LATZ IN INDIA

The Pilot Latex Processing Centre, owned and operated by the Rubber Board, is the first factory that produced LATZ latex in India. It started its commercial production in April 1990 and produced about 375 MT drc of LATZ latex till December 1991. Since then two public sector units have also joined in the production of LATZ latex. Another unit in the estate sector and one in private sector are now in final stage of producing this latex. Efforts are also being made to extend the production in other processing factories.

### PRODUCTION OF LATZ LATEX

Among various low ammonia preservative systems developed, LATZ is effective for preserving both field latex and concentrated latex. As per the procedure standardised at the Rubber Board, field latex is preserved with 0.2% ammonia, 0.025% TMTD and 0.025% Zinc oxide by weight of latex. TMTD and Zinc oxide are added as 33% and 50% dispersion respectively. The quantity of

chemicals required for 100 kg field latex is given in Table 1.

The LATZ preserved field latex is centrifuged using processes similar to those used in HA method. After centrifuging, the latex is ammoniated to 0.2% by wt. and MST is boosted by the addition of 0.075 lauric acid.

### ADVANTAGES OF LATZ LATEX

LATZ latex possesses certain specific advantages over HA latex in both processing and manufacturing.

#### A. ADVANTAGES IN PROCESSING

1. Improvement in quality of centrifuged latex and preserved latex - The preservation of field latex and centrifuged latex using ammonia, TMTD and Zinc oxide system actually produces a sterile latex. The control of VFA is excellent with this system.
2. Savings in cost of preservatives - quantity of chemicals required for processing latex with this system is low.
3. Savings in consumption of ammonia - There is also considerable savings in the consumption of ammonia, about 80%, by the new method.
4. Savings in production cost of skim crepe - Since the ammonia in skim latex is low, less amount of sulphuric acid is required for coagulation.
5. Savings in effluent treatment - As less sulphuric acid is used for skim coagulation, residual chemicals present in the effluent will be low which leads to savings in effluent treatment.

A comparative study of the processing cost of 100 kg drc HA and LATZ cenex produced in a

typical unit during 1991 is given in Table 2. The table shows that there is 33% savings in processing cost with the LATZ system.

#### B. ADVANTAGES IN MANUFACTURING

1. LATZ technology for processing cenex assures low VFA.
2. As LATZ is completely sterile, it can be stored for longer periods.
3. Zinc oxide and TMTD added to LATZ are compounding ingredients for most of the latex products and hence do not interfere with the compounding behaviour.
4. LATZ can be consumed without deammoniation process which is necessary during the manufacture of some of the latex goods while using HA latex.
5. Use of LATZ latex helps the manufacturers to control and reduce pollution and environmental problems.
6. Lastly, manufacturers are benefited in production cost, since they can do away with the deammoniation step.

#### LATZ LATEX AND THE CONSUMERS

In order to assess the specific advantages accruing to the rubber consumers by using it, we have collected their view through a questionnaire. Since foam rubber is the single largest user of latex concentrate (its share of total latex usage is 48% in 1989- 90) details were collected from the manufacturers of foam rubber alone. There are 329 licensed units in India to produce foam rubber, distributed all over the country - the pattern of distribution of units is given in

Table 3. Though questionnaires were sent to all the foam manufacturers, only 75 units have furnished completed details in time. In addition, a few have responded well and enquired more clarification on this product.

From the details collected it is found that there are still difference of opinions about this latex. Some of the units who already started using this material regularly, have reported that its performance is better than the standard HA latex. Many units have undertaken trial production with LATZ latex and found the same better but are of the opinion that they will use this product regularly only after knowing its constant availability. Another group of consumers who are far-sighted enough to foresee some of the changes in the latex processing industry welcomed and evinced interest to switch over to this product if it is technically and economically suitable. A few showed subdued interest and enthusiasm because they are the people who are engaged in black marketing and tax evasion. Some units which are not considering about the quality and other aspects are very sceptical as they are happy with the conventional form of latex. To substantiate this argument further, it is pointed out that they are not interested to take any risk in changing the raw material due to the non-availability of testing facilities.

There are also lot of suggestions made by the consumers. Some reacted strongly about the quality of latex. They have an inferiority that they are in a typical situation of having no alternative choice except to buy and use anything they get as latex. It is rumoured that even some non ISI units are



also marketing their latex as ISI. Therefore, for ensuring standardisation of quality, they suggested to produce and market LATZ latex strictly as ISI product.

Some consumers required detailed information on chemical content of LATZ latex, the percentage of drc, price, its availability and despatch position. They evinced more interest on LATZ latex because of its low ammonia content, and suggested to supply this product at a fixed price for a period of atleast one year.

While the above suggestions are in favour of LATZ latex, some consumers who have used this latex for trial production went further ahead and argued against it on the following ground that high ammonia content (0.75-0.80%) is generally required for manufacturing most of the foam products. To strengthen this argument they added that, if ammonia is low, stability decreases and at the same time foaming time increases which affects the quality of finished good. They also pointed out the difficulties in procuring LATZ latex as its landed price is comparatively high owing to high transportation cost when compared to the landed price of concentrated latex as the former is now available only at Chethackal and Punalur.

## FUTURE OUTLOOK

### A. Supply

Though PLPC, PCK and RPL are the only three units engaged in production of LATZ latex, efforts are being made for setting up of more such factories in corporate and estate sector. Some of the existing units processing 60% concentrated latex have welcomed

this move and prepared to convert a sizeable share of their production to LATZ latex.

Therefore, an economic analysis of latex processing industry is necessitated to get an idea of the production possibility of this new type of latex.

In order to assess the strength and weakness of this industry, a study was conducted by the Rubber Board, and the report of the study revealed that there were 28 units in operation for processing centrifuged latex during 1985-86. The achievable capacity of the industry was estimated to 52500 MT and the capacity utilisation is 48% of the achievable capacity. Since then 5 units in private sector have joined the production line in 1989 and increased the achievable capacity to 61100 MT. In addition, licenses were issued for 16 new units. Some existing units have also enhanced the installed capacity. The report estimated that capacity utilisation of the industry will increase by 7 to 8% in the coming years. Taking into account the emergence of new units and expansion programme of the existing units and assuming 57% and 48% capacity utilisation, the supply position is projected and is given in Table 4. From the table we can see that projected supply of concentrated latex for the year 1990-91 would be 47652 MT. when 57% utilisation and 40128 MT when 48% utilisation. But the production figures published by the Rubber Board for the corresponding period is only 39440 MT which is lower than what we have projected. This difference may be due to the suppression of actual production by the private sector units as explained in earlier studies.

### B. Demand

Demand for latex is said to be derived demand in nature since it depends on demand for the end products. The important products manufactured from latex are foam rubber, elastic thread and dipped goods like gloves, toys, balloons, teats, bladders and so on. There are about 1200 factories engaged in production of different latex based goods scattered all over the country. Product-wise consumption of latex for the period 1975-76 to 1990-91 is given in Table 5.

The consumption figure in Table 5 shows that the industry has registered an annual growth rate of 12% over the 16 year period. Assuming the same growth rate, the estimated demand for the year 1991-92 will be 44650 MT and for the year 1994-95 it will be 62730 MT. It is also expected that the growth rate of demand for concentrated latex will not change in the near future since the newly established gloves manufacturing units are importing latex from abroad. Moreover, some of the manufacturers have now started to substitute good quality creamed latex and preserved latex for concentrated latex.

An analysis of the consumption figures provided by the 75 foam units included in the study shows that their requirement of LATZ latex for the next two years will be in the order of 58% and 60% of the total latex requirement. Based on this we can estimate the total demand for LATZ latex in the foam industry and the estimated figures are 14490 MT for 1992-93 and 17068 MT for the year 1993-94. This is only a rough indication of the future demand pattern showing there is exciting prospects for LATZ latex. However, the techno-economic considerations suggest that the consuming industry would prefer at least 20 to 30% latex consumption in the form of LATZ latex and therefore

the processing industry will be in a position to expand its production to meet this demand. The companies interested in tapping this market should then take several steps for the successful operation. An attempt is made here to suggest a few important measure to be undertaken before starting the venture.

### MEASURES

1. As LATZ latex is a new product, make it known to the public at large including people in the same industry is important. Similarly, measures should be taken to create a new awareness about the need for incorporating industrial safety measures.

2. It is also essential to undertake more practical demonstrations in major latex consuming centres. This will enable the consumers to get full details of its chemical structure and the changes if any required while using latex for producing different type of latex based items.

3. Since majority of the consumers are small scale units, LATZ latex should be supplied in potential areas through regional depots so that the small buyers can directly purchase it from depots without involving much paper work and other formalities.

4. Arrangements should also be made for the sale of LATZ latex in small quantities since the working capital of small units is very low.

5. Lastly, price which is the most deciding factor of purchase in small factories, should be fixed on a definite criteria taking into account the actual cost involved for processing this latex plus a nominal margin.

TABLE 1

Quantity of Chemicals required for processing 100 kg. field latex with LATZ system.

| Chemicals                              | % by wt. of latex |
|--|-------------------|
| Ammonia                                | 0.200             |
| Zinc oxide (Zno)                       | 0.025             |
| Tetra Methyl Thiuram Disulphide (TMTD) | 0.025             |

TABLE 2

Processing cost of 100 kg. (drc) Cenex using HA and LATZ systems

| FIELD LATEX : 117 kg (drc) = 390 kg. (wet wt) |               |               |               |               |
|---|---------------|---------------|---------------|---------------|
| Preservatives                                 | H.A.          |               | LATZ          |               |
|   | Qty.<br>(kgs) | Cost<br>(Rs.) | Qty.<br>(kgs) | Cost<br>(Rs.) |
| Ammonia                                       | 3.900         | 39.39         | 0.975         | 9.84          |
| DAHP  | 0.200         | 4.12          | 0.200         | 4.12          |
| ZnO   | -             | -             | 0.0975        | 5.85          |
| TMT   | -             | -             | 0.0975        | 9.75          |
|   |               | 43.51         |               | 29.56         |
| CENEX: 100 kg (drc) = 167 kg (wet wt)         |               |               |               |               |
| Ammonia                                       | 0.835         | 8.43          | 0.125         | 1.26          |
| Lauric Acid                                   | 0.033         | 4.65          | 0.125         | 17.62         |
|   |               | 13.08         |               | 18.88         |
| SKIM PRODUCED: 13 kg. drc.                    |               |               |               |               |
| H <sub>2</sub> SO <sub>4</sub>                | 4.000         | 10.40         | 1.300         | 3.38          |
| EFFLUENT TREATMENT                            |               |               |               |               |
| Fe Cl <sub>3</sub>                            | 0.300         | 4.90          | 0.300         | 4.90          |
| Lime  | 7.500         | 10.50         | 3.750         | 5.25          |
|   |               | 15.40         |               | 10.15         |
| TOTAL COST                                    |               | 82.39         |               | 61.97         |

**TABLE 3**  
State-wise distribution of units manufacturing foam rubber (1989-90)

| State          | No. of units | Total licensed quantity of natural rubber (MT) |
|----------------|--------------|--|
| Andhra Pradesh | 14           | 699  |
| Gujarat        | 21           | 945  |
| Haryana        | 14           | 835  |
| Karnataka      | 35           | 3020   |
| Kerala         | 50           | 2445   |
| Madhya Pradesh | 14           | 640  |
| Maharashtra    | 19           | 1175   |
| Punjab         | 27           | 980  |
| Tamil Nadu     | 28           | 3507   |
| Uttar Pradesh  | 36           | 1605   |
| West Bengal    | 10           | 334  |
| Delhi          | 44           | 4516   |
| Others         | 17           | 1473   |
| <b>TOTAL</b>   | <b>329</b>   | <b>22174</b>                                   |

Source: Directory of Rubber Goods Manufacturers in India-1989.

**TABLE 4**  
Projected supply of Concentrated Latex

| Year    | Achievable capacity (MT) |          | Total | Supply (MT)     |                 |
|---------|--------------------------|----------|-------|-----------------|-----------------|
|         | Existing                 | Proposed |       | 57% Utilisation | 48% Utilisation |
| 1990-91 | 61100                    | 22500    | 83600 | 47652           | 40128           |
| 1991-92 | 61100                    | 32250    | 93350 | 53210           | 44808           |
| 1994-95 | 61100                    | 32250    | 93350 | 53210           | 44808           |

**TABLE 5**  
Product-wise consumption of Concentrated Latex (Qty. in tonnes)

| Year    | Latex foam | Dipped goods | Others | Total |
|---------|------------|--------------|--------|-------|
| 1975-76 | 2033       | 3478         | 841    | 6352  |
| 1980-81 | 5753       | 4945         | 3122   | 13820 |
| 1985-86 | 12396      | 7602         | 1447   | 21445 |
| 1986-87 | 13100      | 10150        | 1625   | 24875 |
| 1987-88 | 14400      | 11590        | 2200   | 28190 |
| 1988-89 | 15230      | 12236        | 2954   | 30420 |
| 1989-90 | 17783      | 14052        | 4955   | 36790 |
| 1990-91 | NA         | NA           | NA     | 39865 |

[NA = data Not Available]

Source: Indian Rubber Statistics, 1991.

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