

USE OF RUBBER SEED OIL SOAP IN LATEX FOAM FROM NATURAL RUBBER AND NATURAL RUBBER / STYRENE BUTADIENE RUBBER BLEND

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Latex foam was prepared from natural rubber and a blend of natural rubber and styrene butadiene rubber using rubber seed oil soap as well as potassium oleate. Evaluation of the properties indicated that the quality of foam obtained using rubber seed oil soap was comparable to that of the foam prepared using potassium oleate and conformed to Bureau of Indian Standards (BIS) specification for latex foam. Rubber seed oil soap was also found to be comparable to potassium oleate as foaming agent in blends of NR and SBR latices for foam production.

Key words: Latex foam, Natural rubber, NR/SBR latex blend, Potassium oleate, Rubber seed oil.

INTRODUCTION

Rubber tree (*Hevea brasiliensis*) is widely used as the source of natural rubber (NR) and its seed has been found to be rich in oil (Potty, 1980; Haridasan, 1992; Thomas *et al.*, 1996). The dried kernel of the seed contains about 42% oil and it is extracted usually by the expulsion process. Rubber seed oil (RSO) is a light yellow coloured semidrying oil.

RSO contains about 18-22% saturated and 78-82% unsaturated higher fatty acids. The composition of fatty acids in RSO is given in Table 1. There are several industrial applications for RSO. It has strong potential to substitute linseed oil in alkyd production (Aigbodion, 1991, 1995; Aigbodion and Okieimen, 1995; Aigbodion *et al.*, 2000, 2003; Aigbodion and Pillai, 2000, 2001; Coomarasamy, 1977). It can also be used in the manufacture of paint, linoleum, soap, factice (Donnelly, 1963; Flint *et al.*, 1969; Vijayagopalan, 1971;

Fernando, 1971), varnish (Williams, 1950; Haridasan, 1977), leather industry (Vijayalakshmi *et al.*, 1988) and preparation of grease (Njoku and Ononogbu, 1995). According to Nandanani *et al.* (1999) RSO can be used as a multipurpose ingredient in NR and SBR compounds. It was also evaluated as an alternative to diesel oil as fuel (Perera and Dunn, 1990). Epoxidised rubber seed oil (ERSO) (Vijayagopalan and Gopalakrishnan, 1971) is used in the formulation of anticorrosive coating, adhesive and alkyd resin coating (Aigbodion, 1994). Use of RSO, ERSO and its lead and barium salts as heat stabilizers for PVC has been reported (Okieimen and Ebhoaye, 1992, 1993a; 1993b). There are reports on the use of RSO and ERSO in natural rubber compounds for improving the processability characteristics and physico mechanical properties (Aigbodion *et al.* 2000).

Potassium oleate is commonly used as the foaming agent in latex foam production.