2007 ELGI AGM Best Paper Award

The ELGI Best Paper Award committee is pleased to announce that this year's award for the best paper was presented to Dr. Valentina Serra-Holm from Nyans Sweden for her paper on "Super heavy naphthenics: additive or base oil"

All the presentations were carefully considered and judged on selected criteria that resulted in an overall mark worthy of this potential achievement. These criteria included paper content, originality, technical value, benefit to lubricant industry, impact as a problem solver in the field, financial impact in industry, presentation skills and enthusiasm, subject knowledge, quality of presentation slides and handling of questions and answers.

On behalf of this committee and the ELGI board we would like congratulate Valentina on this important and worthy achievement.

Lennart Hamnelid
Chairman review committee

Valentina Serra-Holm
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Super heavy naphthenics: additive or base oil

In order to accomodate the global undersupply of bright stocks, different substitutes are available. One of the options is that of using heavy naphthenic grades. The present paper illustrates a super heavy naphthenic oil produced from a heavy naphthenic distillate that can be used in the formulation of lubricants for applications where tackiness combined with high shear stability is required. Properties such as film strength, thickening effect, tackiness and shear stability have been tested on the super heavy naphthenic oil and on a series of polyisobuthene polymers with different molecular weight. The results of the study enlighten the complementary characteristics of these two types of products.

Introduction

The global undersupply of high viscosity oils (commonly referred to as bright stocks) has been underlined by several analysts. According to recent market research issued by Kline and Company "the global supply of bright stocks fell by 8% from 1995 to 2005, and as more conventional Group I plants are rationalized,

bright stock supply will continue to fall by more than 10% through 2015”[1]. While the demand for bright stocks in automotive applications is expected to decline due to the shift from monograde to multigrade engine oils and to fill-for-life gear oils, bright stock demand will remain steady in many niche applications, such as marine applications, greases and metalworking fluids.

One of the options to address this shortage is the substitution of bright stocks with alternative components, such as polyisobuthene and heavy naphthenic oils.

Polyisobuthene (PIB) is used as a substitute for bright stocks in some applications but its supply is also constrained and according to analysts it is not likely to be able to compensate for the entire bright stock deficit.

Another alternative is represented by high viscosity naphthenic oils that could be used alone or in combination with PIB in some bright stock applications, first of all marine greases.

In the present study we have compared the properties of a super heavy naphthenic oil with those of some commercial PIBs. The performances of these materials in terms of film strength, tackiness, viscosity improvement and shear stability were compared.