


6th International Conference on
Organic & Inorganic Chemistry

August 08-09, 2019 | Amsterdam, Netherlands

Bio-modified asphalt binder via using waste oils and plastic wastes as eco- friendly and sustainable modifiers

High construction costs when combined with awareness regarding environmental stewardship have encouraged the use of waste and renewable resources in asphalt modification. Increasing energy costs and the strong worldwide demand for petroleum has encouraged the development of alternative binders to modify or replace asphalt binders. The benefits of using alternative binders are that they can help save natural resources and reduce energy consumption while maintaining and, in some cases improving asphalt performance. Use of alternative (or byproduct) materials in asphalt mixtures may be one of the most complicated of the highway uses. The best use must be carefully engineered and designed, including the design of the mixture itself, the effects of the alternative materials on the asphalt binder behavior, and the pavement into which it will be incorporated. Common alternative has been observed that most, if not all, of these alternative binders contain chemical compositions somewhat similar to those of conventional asphalt binders (e.g. hydrocarbons, aromatics, saturates, and asphalt). However, tests indicate significant variability in the properties of alternative binders. In addition, the modification mechanism (chemical) for asphalt with alternative binders depends on the base asphalt and is therefore not well understood. It is critical to evaluate the technical feasibility of incorporating alternative binders into conventional asphalt binders for use in pavements. Because of the urgent need for infrastructure rehabilitation and maintenance, the introduction and application of such sustainable and environmentally friendly materials will have significant impact on the national economy as well as energy sustainability. It is necessary to determine what types of byproduct materials are suitable for use as alternative binders. Any alternative material under consideration must be adequate in chemical composition so that the asphalt material can be compatible using the highest amount of alternative binder possible. Considering the urgent need for infrastructure rehabilitation, the introduction and application of these sustainable and environmentally friendly materials could have significant impacts on the national economy as well as energy sustainability.



Ragab Abd Eltawab Abd El-Latief
 Egyptian Petroleum Research Institute
 Egypt

Biography

Ragab Abd Eltawab Abd El-Latief is a Researcher in Egyptian Petroleum Research Institute (EPRI), Petroleum Applications Department at Asphalt Lab. He has publications of books entitled "Environmentally Friendly and Economical Road Construction", "Manufacture of Specific Asphalt Binder for Use in Paving by using Waste and Low Cost Materials", LAP LAMBERT Academic Publishing (2014). He has a publication of a chapter in a book entitled "Using of Waste and Low Cost Materials in Manufacture of Specific Asphalt Binder for Use in Paving Vol.2: Petrochemical of Adv. in Petroleum Engineering, Studium Press, LLC, USA. (2014). He is a Key Member of the project: Enhancing Sinai Population: Novel Modification of Soft Asphalt for Use in Roadway Network Development and Infrastructure Applications.

chemragab83@yahoo.com