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Harima Releases Biomass-based Asphalt Regeneration Additives

HARIMA CHEMICALS GROUP, INC.

Harima is glad to announce the release of biomass-based asphalt regeneration additives developed in collaboration with “The Public Works Research Institute” and “Nihon University”, Japan. High in biomass, the newly developed agents significantly contribute to the reduction of environmental impact, and enhancement of the sustainability of road infrastructure owing to their superior resistance to wear and ability to rejuvenate asphalt even when used in small quantities.



In recent years, research and development has been underway for the creation of additives and materials that can successfully replace fossil fuel-derived agents, towards carbon neutrality. In this regard, The Ministry of Land, Infrastructure, Transport and Tourism of Japan has been actively promoting mitigation of carbon emissions related to the lifecycle of roads, and is aiming to curb carbon emissions in the sector by over 35%, compared to 2013. To achieve this challenging goal, it is essential to extend the service life of roads and significantly reduce carbon emissions in the construction process and management of roads. Regenerated asphalt requires enhancement in resistance to wear so as to reduce frequency of repair and optimize maintenance together with the utilization of low-carbon alternatives.

In Japan, approx. 70~80% of asphalt mixes are regenerated asphalt mixes. Regeneration additives restore the flexibility of hardened asphalt that was exposed to various weather and traffic conditions, allowing for repeated use, however conventional agents are not effective enough in restoring the performance of repeatedly recycled asphalt.

The newly developed additives are made from pine-derived materials such as rosin etc., that are environmentally friendly and significantly help decrease carbon emissions in the entire supply chain. They feature properties on par with conventional agents, while also being able to satisfactorily regenerate asphalt even when used in small quantities. In addition, they prevent asphalt wear, and so can be effectively paired with repeatedly recycled asphalt. They also confer enhanced flexibility compared to conventional agents, thus extending the lifespan of roads and contributing to the realization of a sustainable road infrastructure.

In the coming months, the new agents will be tested with various types of mixes for property optimization and actual usage on roads.

■ Core Features

1. Environment-conscious Design

- Are 98% biomass-based
- Have properties on par with conventional agents, allowing for successful replacement
- Reduce by 3% carbon emissions resulted in a year per 1 square meter of asphalt

2. Efficient Utilization of Resources

- Reduce by 30% the quantity of additives necessary to restore asphalt, compared to conventional agents

3. High Performance

- Reduce by 30% the wear of regenerated asphalt, compared to conventional agents
- Can fully restore overall performance of aged asphalt
- Can be effectively employed with repeatedly recycled asphalt, thus contributing to extending the service life of roads

Recent years have seen an increasing interest in SDGs and environment-conscious products. Harima will continue to expand the number of biomass-based products that actively contribute to environmental preservation and the realization of a sustainable society.

■ Reference Data

- Public Works Research Institute website:

<https://www.pwri.go.jp/eindex.html>

- Nihon University website:

<https://www.cit.nihon-u.ac.jp/en/>

Contact

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URL: <https://www.harima.co.jp/en/inquiry.php>