Request for Expressions of Interest

Sand consist changes for improved track circuit performance

RSSB, on behalf of the rail industry, is seeking to carry out research on sand consists used in train mounted sanders to improve performance with track circuits to enable better management of low adhesion for braking and traction

Purpose

This Expression of Interest (EoI) invites interested parties to provide information on **products** and **testing** to support RSSB in the development of this research.

The Adhesion Research Group has identified the need to carry out research into enhancing the electrical conductivity of sand used in on train sanders to improve the compatibility with various types of track circuits, in both clean and contaminated rail head scenarios at the same time fulfilling the primary function to improve wheel/rail adhesion.

RSSB has carried out significant work to prove the braking effectiveness of different sander configurations in low adhesion conditions. This complementary piece of work is to look at the consist of the sand to investigate how adding conductive materials preserve track circuit detection capability when using sanders on track circuits particularly where the rail head is contaminated.

RSSB are inviting expressions of interest from companies involved in designing/manufacturing/testing railway adhesion sand who have existing products and capability in this area or are interested in developing new products and capability.

Background

Recent RSSB research work has tested and proven the effectiveness of different sander types and configurations to improve braking capability in low adhesion conditions. Previous work has looked at laying rates of standard ‘adhesion sand’ to set thresholds for not compromising detection capabilities of track circuits. The effectiveness of some types of track circuits is often compromised in autumn conditions due to crushed leaf debris on the railhead acting to electrically insulate the wheels of a train from the rail. The use of sanders in contaminated rail head conditions is key to managing braking and traction and whilst the actual transfer mechanisms are not well understood, the application of some sand can help to breakdown the layer of contamination and help the operation of track circuits. If by using some additives to the sand (perhaps metallic) the conductive properties can be improved there are potential benefits in terms of track circuit reliability in autumn conditions and also adhesion if the laying rates of ‘enhanced’ sand can be shown to be safe to increase. It is worth noting that a likely key constraint is that any ‘enhanced’ sand would need to work with existing sanders and the product must be economically and environmentally viable.

It is likely that manufacturers and other railways have looked at this issue and might have gone some way in developing products and carrying out laboratory and on track testing.

The overall aim of the research would be to set the framework within which new improved products could be taken up by the industry. To achieve this the project is planning to:

* understand the potential range of enhanced sand materials,
* carry out a range of laboratory and basic on track tests to test track circuit and adhesion performance,
* and if successful, propose a performance specification.

Information requested

At this early stage we are inviting EoIs from companies that have:

* either designed or manufactured adhesion sand mixtures
* or have proven capability to be able to undertake testing on sand mixtures

Companies responding to this EoI should respond covering some or all of the following as is appropriate:

* Types of sand mixtures that would be expected to meet the requirements (additional material type(s), particle size, proportions etc)
* Willingness to engage with RSSB for laboratory/on track testing on this research
* Ability to provide product samples of their products for testing
* Appropriate testing requirements for demonstrating the performance and safety of the sand mixture
* Existing testing information, product specifications and information on operational use

We welcome support and ideas from the supplier community on how to carry this work and in particular how to make use of existing information.

Timeframes

We are currently developing the project and are targeting for the work to be commenced from **Spring 2020**.

To feed into the process, EoIs should be received by COP **3 February 2020**.

Expressions of interest

We are inviting suppliers to provide a short summary of their interest, products and experience in this subject area to help us deliver a successful project. Taking into account the envisaged scope of work, we would be pleased to receive a summary response (Max 4 pages) by **3 February 2020** setting out your interest.

We recognise companies need to protect Intellectual Property. While any information provided through the EoI will potentially be used to support the development of the RSSB project, it will not be shared in the original format. Should any information be confidential and is not to be utilised in this way, the suppliers should clearly mark it as such.

Having received EoIs, RSSB may engage with the parties that have expressed interest and provided relevant information to further clarify our understanding in order to further inform the project scope.

Next steps

Please email any responses to [Shareditt@rssb.co.uk](mailto:Shareditt@rssb.co.uk)