

# Risk Assessment of the Effects of GRT7000, GRT8000 and GRT9000 on Cattle and Cattle Farms



Environmental Resources Management Australia Pty Ltd (ERM) carried out an assessment of the potential risks to cattle that might result from the application of GRT7000, GRT8000 and GRT9000 on unsealed vehicle access roads. These products are used as road stabilisers and for suppressing dust.

## **What are the products?**

The three products assessed were GRT7000, GRT8000 and GRT9000, which are produced by Global Road Technologies and are used to provide dust suppression or stabilise unsealed (dirt) roadways.

The ingredients of the GRT products are a trade secret. ERM's assessment was based on knowledge of the complete formulations, permitted by a confidentiality agreement with Global Road Technologies. In general terms, the main ingredients in these products comprise:

- bitumen;
- hybrid-styrene copolymers; and
- an anionic emulsifier.

## **How are the products used?**

When the products are exposed to air, a chemical reaction (polymerisation) occurs, which makes it gradually solidify. The reaction starts when the products are sprayed from the back of a water truck and then ploughed into the roadway. The roadway is then compressed to be made suitable for traffic. As the product hardens, it stabilises the roadway soils sealing the surface and allowing water to run off.

## **How was the assessment carried out?**

ERM looked at the toxicity of each of the chemical ingredients of the products and then calculated how much of each chemical a cow could eat while still showing no toxic or health effects. This level was called a 'risk based screening level' (RBSL). The RBSL represents the concentration of each chemical in soil that ERM are confident is not likely to result in a risk to health of the cattle. ERM also considered the sum (or cumulative) effect of eating the mixture of chemicals.

ERM then calculated the maximum likely concentrations of each chemical in the roadway soils based on application as per the manufacturer's instructions. A worst case scenario of the maximum volume of product within the treated soils was

considered in order to provide a factor of safety.

ERM then compared the RBSL to the roadway soil concentrations. The assessment assumed that while eating grass next to the stabilised roadway, a cow would eat an amount of soil attached to grass at the roadside.

The assumptions about the size of cow and volume of soil consumed were based on guidance provided in the American Petroleum Institute (API) API 4733. *Risk-Based Screening Levels for the Protection of Livestock Exposed to Petroleum Hydrocarbons* (2004).

## **What was the result of the assessment?**

This comparison found that **there is no significant risk to cattle health from exposure to the products in a stabilised roadway.**

ERM calculated that if a cow ate 100% grass with roadway soils attached every day for its entire lifetime a risk to its health is unlikely.

## **What about cattle market related risks?**

ERM also reviewed the relevant government import/export and organic certification guidelines to look at the potential risks with respect to the beef cattle marketplace (eg. Australian market, the export market or the organic market). We found that the Australian Government have not assessed the products or the chemicals for export of cattle, and that is considered to be because of their low risk to export. So, ERM consider that **use of these products on cattle farms will not result in Australian or export market risks.**

However, ERM believes that **there is a potential risk to organic certification if the products were used in a field with current organic certification.**

## **Further reading:**

For the full report, including the methodology, toxicity assessment and all references, please refer to our document: **ERM, Road Stabilisation and Dust Suppression Chemical Ecological Risk Assessment Technical Report (Ref. 0222833), May 2014**