

The environmental risks of ‘going green’

Assessing all aspects of biofuels

Laurent Gangiotti

Senior Underwriter, Environmental

Biofuels are often seen as an environmentally friendly solution for the motor industry, compared with conventional petrol. However tempting it is to think that these green fuels are without any environmental impact, a growing body of research is starting to challenge these assumptions. For those involved in the production, manufacture, storage or distribution of biofuels, it is worth assessing the environmental liabilities, ideally with the help of specialist engineering advisors.

Biofuels are defined as any kind of fuel made from living things or the waste that they produce. These can range from relatively innocuous matter such as wood chippings to ethanol, diesel and other liquid fuels. Within Europe biodiesel is used extensively, whereas in the more tropical areas of the world ethanol-based blends play a greater role.

Putting to one side the macro environmental factors associated with the production of biofuel, like the depletion of habitat availability following deforestation, there are other considerations with respect to environmental impacts and potential liabilities. Two specific aspects that require consideration are the behavioural characteristics of biofuels in storage tank systems, and the issues that arise when biofuels enter water or groundwater.

A key component of many biofuels today is a blend containing ethanol, which is often used as an alternative to gasoline. While this has allowed movement away from gasoline products, it does present other challenges. Ethanol has a different solvency behaviour which allows it to loosen rust and debris from storage systems, and can remove plasticisers and resins. This can lead to the contamination of the product which may mean it cannot be used, but just as importantly it can over time lead to leaks in the storage system.

The following properties of ethanol are potential causes of environmental concern (NESCAUM – the clean air association of northeastern United States – Report 2001):

- a) At high concentrations ethanol (more than 10% in the petrol mix) can cause other gasoline constituents to become more soluble in groundwater
- b) Ethanol may delay the degradation of other, more toxic components of gasoline when present in a spill
- c) Ethanol is capable of causing an increased spread of gasoline on top of the water table.

The implications of the above are that if there are accidental releases then the contamination associated with this can be more problematic than with conven-

tional fuels. This can translate into higher costs of remediation, more detailed future monitoring or the need for new techniques to contain the issues.

This is critically important to operators where environmental liability may be triggered through a requirement to implement remediation of the affected areas. Most environmental laws have a strict liability scope to them and are based on the “polluter pays” principle. This means that in the event of a leak the financial burden is going to fall to an operator, whether a fuel distributor or someone storing fuels for their own business. Environmental laws are constantly evolving and companies need to be aware so that they don’t fall foul of changes.

The move to biofuels is often seen as positive for the environment. However, this should not mean that all is benign, as environmental impacts and risks can still be very pertinent. 