

DISPERSANTS

Dispersants are a chemical response tool that changes the interfacial tension between oil and water. With sufficient mixing energy, the treated oil will break up into small droplets and diffuse into the water column. The droplets have an increased surface area, stay in the water column longer and lead to more effective microbial degradation. A primary advantage of dispersants over other response options is the application speed and encounter rate. Dispersants have been successfully used in treating both surface spills and subsurface oil releases.

Modern commercial dispersants contain ingredients that are similar to, and in some cases less toxic than, those found in many common household soaps,



IOSC 2024

DISPERSANTS

cosmetics, shampoos and even food. It is important to note that dispersants are less toxic than the spilled oil that they treat.

The decision to use dispersants is based on tradeoffs between decreasing the expected risks to wildlife on the water surface or shoreline while increasing the potential risk to organisms in the water column. Decision-makers use tools such as the Spill Impact Mitigation Analysis (SIMA) process to identify the response action(s) that will result in minimizing long-term environmental impact. Sometimes using dispersants is the only viable response option, especially in the event of a large-scale release offshore.

- Aircraft-based platforms ranging in size from helicopters to commercial jets enabling responders to treat larger and more distant spills quicker than other response options.
- Vessel-based platforms may be used for targeting small scale dispersion operations and can also serve to suppress volatile organic compounds (VOC) to protect response worker health, especially during the initial stages of a response or during extended source containment operations.
- Subsea injection can reduce the amount of oil coming to the surface and the potential for exposure to VOCs by response personnel. A surface ship transfers dispersants to storage tanks on the sea floor and then they are applied directly to the source by remotely operated vehicles or piped into the well blowout preventer.