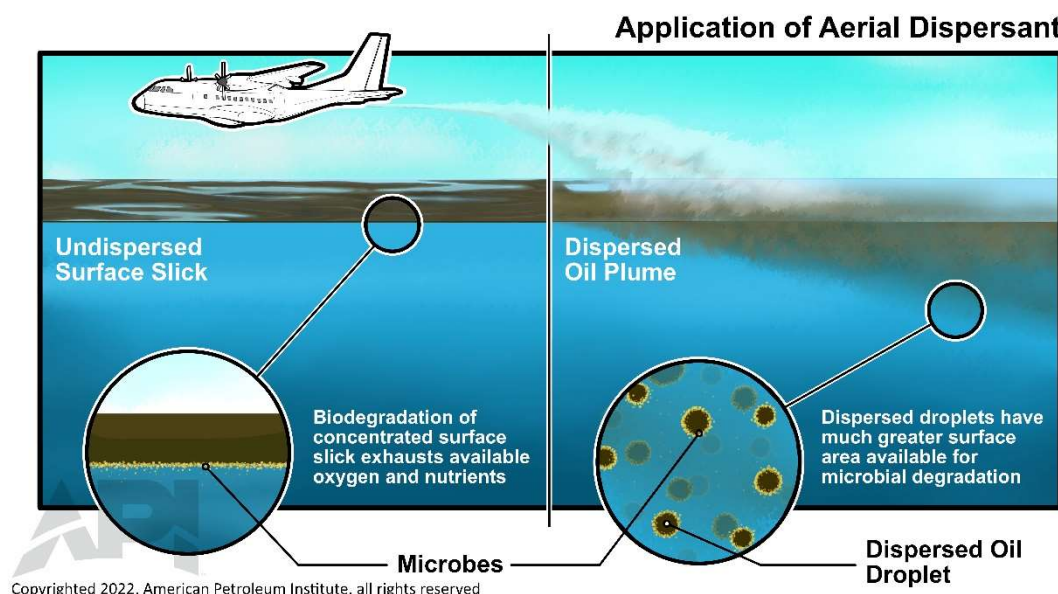




Dispersants are a chemical response tool that changes the interfacial tension between oil and water. With sufficient mixing energy, the treated oil will break up into small droplets and diffuse into the water column. The droplets have an increased surface area, stay in the water column longer and lead to more effective microbial degradation. A primary advantage of dispersants over other response options is the application speed (e.g., delivered by aircraft) and encounter rate, i.e., able to treat large surface slicks or subsea plumes. 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, cosmetics, shampoos and even food. It is important to note that dispersants are less toxic than the spilled oil that they treat.

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 impacts. The SIMA process evaluates the trade-offs between decreasing the expected risks to wildlife on the water surface or shoreline while increasing the potential risk to organisms in the

water column. Sometimes using dispersants is the only viable response option, especially in the event of a large-scale release offshore.

Dispersants are approved and regulated as a response option in many countries around the world. All dispersant products used in the U.S. must be listed on the U.S. Environmental Protection Agency's (EPA) National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Product Schedule before a spill and authorized for use by the Federal On-Scene Coordinator (FOSC) during a spill response.

Aircraft and Vessel-Based Application

Dispersants are sprayed on oil slicks in droplets of a particular size at agreed upon application rates, e.g., 5 gallons/acre (19L/4000 M³). Application operations are guided by spotter aircraft personnel who have a clear vantage point. 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.



Image Provided Courtesy of Oil Spill Response Limited

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. Surface dispersant applications may be affected by weather conditions that make it unsafe for personnel to work and/or diminish the effective application of the dispersant, e.g., high sea states and wind.

Subsea Application

Dispersants can be injected to treat point sources such as a pipeline break or loss of well control. 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.

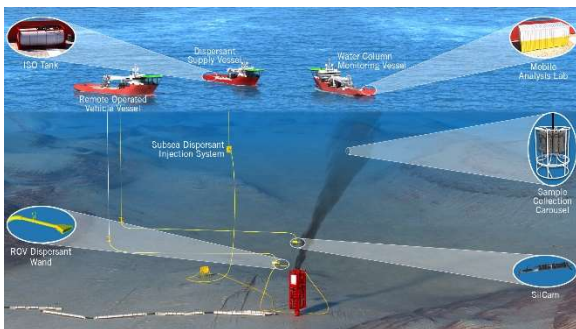


Image Provided Courtesy of Marine Well Containment Company

Improving Dispersants

Industry, academia, and government continue to conduct research and testing to improve the way dispersants can be used effectively. These efforts focus on a better understanding of dispersant/oil toxicities, critical operational parameters, the effect of environmental conditions on efficacy, and the balance of outcomes from their use.



Image Provided Courtesy of Marine Spill Response Corporation

The information present here has been made available with permission from the American Petroleum Institute. Additional information can be found at: <http://www.oilspillprevention.org>