

**A STUDY OF THE EFFECTIVENESS OF SOLIDIFICATION
OF HYDROCARBON LIQUIDS USING CIAAGENT®**

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Solidifiers are dry, granular hydrophobic polymers that form a physical bond with the oil by molecular interaction (van der Waals forces, London's forces, etc.) and are used to immobilize oil spill propagation and dispersion. CIAgent® is a non-toxic, proprietary polymer blend listed as an "Oil Solidifier" on the EPA's National Contingency Plan Product Schedule for use on oil spills in the navigable waterways of United States. CIAgent® solidifies the liquid hydrocarbons through rapid transformation into a cohesive rubber-like inert mass upon contact. This rubbery mass retains the liquid for easier removal and disposal. The characterization of the effectiveness of CIAgent® for the variety of hydrocarbon spills (e. g., gasoline, diesel fuel, crude oil) that could be encountered was achieved by measuring the heat of solidification using a solution calorimeter (Parr Instruments, Model No. 6755) at room temperature and atmospheric pressure. A Temperature-Time plot was obtained and the heat of solidification was calculated using the temperature difference upon solidification. The temperature change was correlated to the solubility parameters (δ , ρ and h) and a three-dimensional graph was generated to represent the effectiveness of CIAgent® solidification. The heat of solidification value is used to determine the ease with which the CIAgent® solidifies the hydrocarbon liquids.

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