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**OXIDATIVE STABILITY OF BIODIESEL—METHODS, TOOLS, AND TECHNIQUES
FOR ASSESSING THE EXTENT OF DEGRADATION**

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Biodiesel is a renewable fuel manufactured from vegetable and animal oils. As such, it is susceptible to the same oxidative processes that cause rancidity in these materials. The byproducts of these processes in biodiesel are high molecular weight oligomers, and/or oxidized break-down products, often aldehydes or organic acids. These unwanted byproducts pose potential problems in internal combustion engines due to insolubility and/or corrosivity. The Oil Stability Index, OSI, provides a measure of the oxidative stability of biodiesel. Other analytical techniques and determinations, such as UV absorbance, peroxide value, Gel Permeation Chromatography (GPC), and GC-MS, provide additional insight to the oxidative process. Data from these various techniques have been used to follow the oxidative aging in biodiesel. The effectiveness of oxidative stabilization of biodiesel with several antioxidant formulations, and the impact of possible biodiesel handling issues such as air intrusion and storage temperature is presented.