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(71) Applicants: NALCO/EXXON ENERGY CHEMICALS, L.P. [US/US]; 7701 Highway 90-A, Sugarland, TX (US). NALCO CHEMICAL COMPANY [-/US]; One Nalco Center, Naperville, IL 60563-1198 (US).

(72) Inventors: McCLAIN, Robert, D.; 2430 Manorwood Drive, Sugarland, TX 77478 (US). KRAUS, Paul, R.; 549 Carlyl Lane, Bollingbrook, IL 60440 (US). POINDEXTER, Michael, K.; 2323 Long Reach Drive #12203, Sugarland, TX 77478 (US).

(74) Agent: KEEFER, Timothy, J.; Ladas & Parry, 224 South Michigan Avenue, Chicago, IL 60604 (US).

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(54) Title: METHOD TO MONITOR AND CONTROL CHEMICAL TREATMENT OF PETROLEUM, PETROCHEMICAL AND PROCESSES WITH ON-LINE QUARTZ CRYSTAL MICROBALANCE SENSORS

(57) Abstract

Thickness-shear mode resonators which simultaneously measure mass deposition and fluid properties can be utilized to monitor petroleum processing, petrochemical and water treatment systems. Specialty chemical additive materials can be accurately and instantaneously added to control conditions detected by the thickness-shear mode resonators. The thickness-shear mode resonators are piezoelectric crystals used in conjunction with oscillator circuitry that can determine mass as well as viscosity and/or density of a fluid in contact with the piezoelectric surface.