Society of Petroleum Engineers

Iran Section

SPE Technical Workshop

Deadline: 1392/7/دیماه

HEAVY ORGANICS DEPOSITIONS In Petroleum Production Transportation and Processing

BY: Prof. Ali Mansoori

Date:14-18/10/1392

4-8/Jan/2014

Author:Prof.Mansoori

Society of Petroleum Engineers

Iran Section

SPE Technical Workshop

عنوان : رسوبات آلي سنگين در توليد، انتقال و فرآوري نفت

خلاصه: در اين دوره، نخست خواص آسفالتن‌ها، رزين‌ها، وكس‌ها و ساير اجزاي سنگين نفت بررسي مي‌شود و خلاصه‌اي مشاهدات آزمايشگاهي و ميداني در مورد رسوب آنها ارائه مي‌گردد. در ادامه مكانيزم‌هاي رسوب آسفالتن، رزين و وكس مورد بحث قرار مي‌گيرند. سپس تكنيك‌هاي آزمايشگاهي براي شناسايي و مطالعه‌ي مشخصات اجزاي سنگين نفت معرفي و بحث مي‌شوند. پس از معرفي انواع مدل‌هاي رياضي مرتبط با اين بحث (از قبيل معادلات حالت، مدل پليمري، مدل هاي كولويدي-ترموديناميكي و مدل‌هاي كينتيك)، تاثير عوامل مختلف در پيش بيني رسوب اجزاي سنگين آلي تحليل مي‌شوند. در نهايت اين دوره با مرور آخرين روش‌ها و پيشرفت‌ها و مشاهدات كمپاني‌ها و مراكز تحقيقاتي مختلف در زمينه رسوب آسفالتن و ساير اجزاي سنگين به پايان مي‌رسد.

هزينه دوره :

۱۷،۰۰۰،۰۰۰ريال

تاريخ برگزاري :

۱۳۹۲/۱۰/۱۴

لغايت

۱۳۹۲/۱۰/۱۸

مهلت ثبت نام :

۱۳۹۲/۱۰/۷

آدرس: بالاتر از ميدان ونک خيابان وليعصر كوچه نگار ساختمان مركزي دوازدهم پلاک ۲۲ انجمن بين المللي مهندسان نفت

تلفكس :۸۸۸۷۴۵۰۶

www.spe.org www.spe-iran.org

Society of Petroleum Engineers

Iran Section

SPE Technical Workshop

Prof.Mansoori's research is in the areas of statistical mechanics and thermodynamics with applications in: chemical engineering process design, heavy oil utilization, asphaltene characterization, sour natural gas purification, supercritical fluid extraction/retrograde condensation, biotechnology, and environmental pollution . he hase developed: new molecular solution theories that are applicable for engineering design calculations; phase equilibria theory of multicomponent mixtures, and he has applied them to the case of polymer solutions, petroleum reservoir fluids, coal liquids, and biological fluids; statistical mechanical mixing rules for asymmetric mixtures consisting of polar and associating molecules such as aqueous; predictive techniques for supercritical fluid extraction, retrograde condensation, and their applications in production and treatment processes of the natural gas industry; phase equilibria for bioseparations and its applications for enrichment of biological macromolecules (proteins) from biological fluids; and deposition and separation techniques of asphaltene fractions from intermediate and heavy petroleum crudes and their application in petroleum production and processing. In developing these techniques he has applied experimental methods of chromatography, interfacial tensiometry, ebuliometry along with fractal aggregation, colloidal, micellar, polymer, and statistical mechanical theories. For further information please check the INTERNET site for the Thermodynamics Research Laboratory

Society of Petroleum Engineers

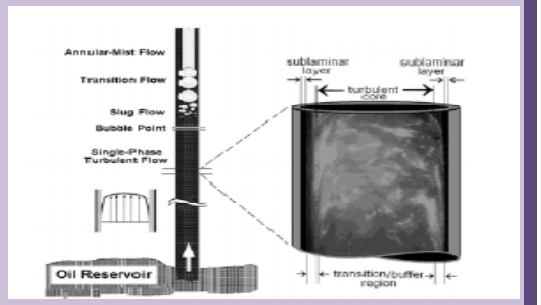
Iran Section

SPE Technical Workshop

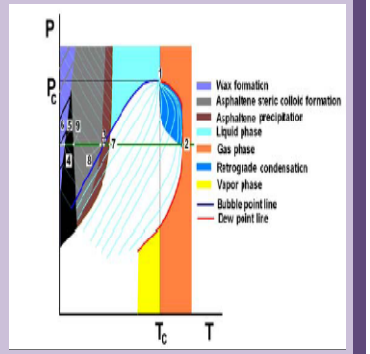
Course Content

1. Introduction – Arterial Blockage due to Heavy Organic Deposition from Petroleum Fluids
2. The nature of asphaltene, resin, wax and other heavy compounds in petroleum
Various phases and phase transitions of asphaltene (asphaltene molecule, asphaltene steric colloids, asphaltene micelles)
3. Field and experimental observations regarding asphaltene, resin, wax and other heavy organic depositions from petroleum fluids, formation damage.
4. Mechanisms of asphaltene, resin, wax and other heavy organic depositions

4.1 Wax deposition - cloud point, pour point, pp suppressants
4.2 Asphaltene deposition - Roles of resin, aromatics and paraffins
4.3 Diamondoids and their role in fouling of oil and gas arteries
4.3 Dilemma of asphaltene/diamondoids/wax/resin/aromatic interactions
5. Experimental Methods in Characterizing Petroleum Fluids and Heavy Organics
5.1 Field and Laboratory Techniques
6. Mathematical modeling of asphaltene and other organic depositions:



6.1 Equations of state models
6.2 Polymer solution models
6.3 Colloidal - thermodynamic models
6.4 Kinetic and aggregation models
6.5 A comprehensive model
7. Applications and predictions:
7.1 Supercritical Fluid Extraction and Retrograde Condensation and Applications in petroleum systems
7.2 Effects of state variables (T, P, X) and flow conditions on Deposition
7.3 Depositions in the reservoir / Miscible gas injection, enhanced oil recovery
7.4 Wellhead and pipeline depositions
7.5 Depositions in processing equipment
7.6 Controlled deposition / refining purposes/formation damage control



7.7 Development of pour-point and deposition suppressants
8. Recent Developments
8.1 Different Company field and laboratory experiences
8.2 Instructor's recent experiences
8.3 Nanotechnology implications of heavy organics
9. Concluding remarks