

Tools for a 21st Century Low Carbon Energy Supply - QcompGCMS

Functional solutions for conventional and unconventional resource assessment.

Exploration petroleum geochemistry saw a peak of discovery and development around the 1970's/early 1980s with few radically new concepts, methods or approaches since then. The 70/80s also saw the development of quick screening methods for assessing oil/gas source rock potential (e.g. Rock-Eval), the development of approaches to assessing temperature history of oil and gas source rocks (maturity), methods for relating different oils/gases to one another or source rocks through molecular or isotopic fingerprints and the definition of practical approaches to modeling oil/gas generation from source rocks. These methods and approaches however are not always portable as tools for the exploration/production activities of unconventional resources and it is surprising to us that low resolution screening tools such as RockEval, useful as they are for screening source rocks, have become such front line tools in the evaluation of several types of unconventional resources. What happened to all the new technologies developed in the 90s and early 21st century-oops-there aren't any! In essence the scientific revolution from 30 years ago needs a reboot! One new technology was developed in that period and that was routine quantitative analysis of petroleum component concentrations. Such a straightforward approach, measuring precisely and accurately the concentrations of key components in crude oils hardly seems radical, yet still today few labs in the world can do it, and even fewer do! We have been improving the precision and accuracy of quantitative GCMS for many years to the point where we have abandoned the traditional compound ratio approaches still used by most petroleum geochemists today. Why, well quantitative data provides better estimates of oil maturity than traditional peak abundance ratio approaches and can be used to make very subtle maturity assessments in self sourcing reservoirs. Accurate quantitative GCMS data often shows trends in biodegradation related compositional changes which are invisible to peak ratio approaches and quantitative data is mandatory for production allocation and viscosity prediction studies in oilfields, therefore Gushor's barrier detection and production allocation processes depend on accurate quantitative data.

Q2compGCMS is a technology package providing proven practical solutions to unconventional resource, exploration and production problems. It is a system that provides ultra stable, accurate quantitative molecular data from petroleum mixtures and supporting software to provide output solutions for unconventional energy exploration and production. It provides a major advance over the qualitative approaches to petroleum geochemistry currently still in use worldwide. It has applications to mapping heavy oil fluid viscosity profiles from reservoir core and horizontal well cuttings; mapping SAGD busting- steam stopping barriers in oil sands reservoirs and providing reservoir engineers with information on spatial well performance in cold and thermal heavy oil production. Q2compGCMS also allows for effective conventional petroleum geochemical applications including accurate maturity assessment, demixing of mixed oil charge to accumulations; assessment of oil-oil and oil-source rock correlations and for other conventional and unconventional oil and gas exploration and production problems. Petroleum geochemical technology did not stop development in the 20th century but has carried on.

If you have any questions or wish to discuss further please contact Gushor at info@gushor.com or (403) 210-7594.