

What do car seat belts have in common with Passive Sorbent-Based Collectors?



The central most frustrating tenet of human nature: **behavior change is hard**. The cleverest people may create, invent or discover the most unique, cheap and simple solution to a problem, but if it requires people to change behavior, custom or the way it has always been done, the solution will not work. Billions of people around the world engage in behaviors or reject solutions and do things they know are bad for them.

Getting them to change, even with the most rational argument or data, isn't easy!

Take the example of the humble car seat belt that is now accepted through North America as a life saving invention. It was NOT always that way!

In **1950**, traffic accidents claimed the lives of nearly **40,000** people and on a rate of death per mile driven that was five times higher than it is today. People died from being impaled on the steering wheel or hitting their heads on the metal dashboard or window. **Vehicles were not safe to drive in the 1950s!**

Enter Robert McNamara, the future Secretary of Defense during the Vietnam War. While at Ford, he recognized the simplest and cheapest fix. Rather than worrying about what peoples' heads hit during an accident, it was easy to stop people from being flung during the accident. Thus the installation of the humble car seat belt for a cost of \$25 per car! McNamara's boss reflected the widespread attitude to the seat belts....."inconvenient, costly and just a bunch of damn nonsense". Fifteen years after the introduction of federal safety standards in the mid-1960s, seat belt use was a laughable 11 percent.

Usage rose to 21 percent by the mid-1980s, 49 percent by 1990, 61 percent by the mid-1990s and today is over 80 percent. It is estimated that since 1975, seat belts have saved roughly 250,000 lives making them the **most cost-effective lifesaving device ever invented**. All that was needed was for people to change their behavior over a period of almost 50 years. **People are slow to change, even if their lives are at stake!**

Now let's look at petroleum exploration. Are geoscientist self-centered enough to think that they embrace change any better than the average person? **Not very likely but a few DO!**

The modern exploration tool box contains technologies that allow the geologist to model basins, sedimentary environments and stratigraphic and structural traps to the nth degree. The geologist can deliver reservoir parameters for lithology, depositional environment, composition, diagenesis, porosity, heavy minerals etc. After over 100 years of evolution, it is unbelievable how well a current day geologist can describe the physical properties of a prospect.

In addition, it is spectacular what has happen in the development of geophysics over the last 50 years. Can you believe the way gravity and aeromagnetics data can be modeled and integrated with seismic, the quality of new seismic data or the new analogs for seismic reprocessing. A company called Novatek made a major gas and condensate discovery in West Siberia based on reprocessed 1960s 2D seismic data plus a DHI technology and **THEN** followed it up the next year with another major oil discovery of 340 million barrels of recoverable oil using the same strategy.

The miracle of 3D seismic brought together the sensitivity of advance geophones, the power of the super computer and unbelievable imaging. In time the geoscientist was able to walk through a 3D projection of the prospect. **BUT...**even though we knew it was the greatest thing since sliced slide bread, it took almost 10 years to learn its appropriate application to maximize results.

The last frontier in oil and gas exploration is to determine if hydrocarbons are contained in the trap. **Does your trap contain hydrocarbons?** Even in the most petroliferous basin, **TRAPS CAN FAIL**. This is the greatest undefined risk associated with the drilling of an exploration well! These days, nobody but a fool would risk their life by **DRIVING A CAR WITHOUT A SEAT BELT!** But numerous geoscientists insist on drilling multi-million dollar exploration wells, without having any idea if the trap really contains hydrocarbons. In other words, they are **DRILLING A WELL WITHOUT A SEAT BELT!**

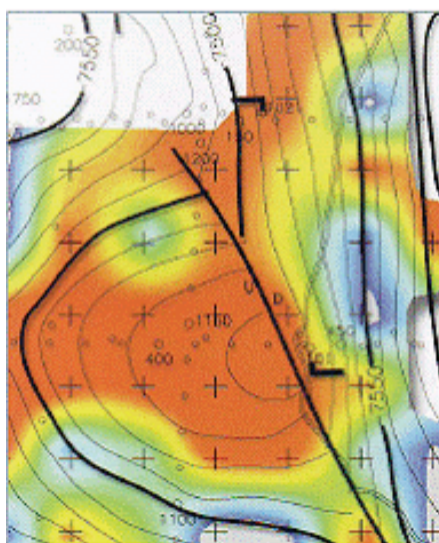
Anyone can drill dry holes but.....

To determine if a trap contains hydrocarbons, Gore has developed Amplified Geochemical Imaging™ using the passive sorbent-based collector.

With petroleum exploration, the technology looks for nanogram quantities (10-9gram) of about 80 hydrocarbons and sulfur compounds ranging from ethane (C₂), to Phytane (C₂₀). This broad range combined with its very high sensitivity allows chemical fingerprinting of near surface microseepage of petrochemicals ranging from dry gas to moderate/heavy oil.

Using amplified geochemical imaging where seismic is ineffective, or combining seismic with the technique dramatically increases exploration success. **Remember Novatek!** Hydrocarbon charge in reservoirs as shallow as 300 m and as deep as 7500 m, has been confirmed even through thousands of meters of volcanic deposits or evaporites.

When combined with a very sensitive state-of-the-art analytical method incorporating thermal desorption, gas chromatography, & mass spectroscopy, nanogram (10-9 gram) levels of compounds can be detected relating to concentrations as low as 1 ppt.



And there lies the answer to the original question: What do car seat belts have in common with Passive Sorbent-Based Collectors? **Why drill an exploration well without a seat belt** when technology exists to determine and identify the hydrocarbons in the trap being drilled. "Seat Belt" cost is minimal compared to a drilled well cost of multi-millions of dollars? **Remember geoscientists are not in the business of drilling dry holes!**

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About GeoChemTech

GeoChemTech Inc. is a Canadian company based in Calgary that provides the World's leading edge surface geochemical technology. This technology has proven its value for over a decade in a number of applications including petroleum exploration, mineral exploration, environmental site assessment and pipeline integrity management.

By combining the use of multivariate statistical techniques with a very sensitive and rich compound data set, the technology gives the earth scientist another tool to save time, improve analysis and success, and reduce costs by generating an enhanced interpretation.