

Deal points to new oilsands project

Evolution of an oilsands 'dinosaur' killer Potential alternative to upgraders untapped for two decades

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A process developed in Alberta almost two decades ago that turns bitumen into oil without using upgrading facilities could be a "game changer" for the province, says the co-developer.

"I could never understand why we wouldn't try something simpler and easier for handling bitumen," said Edmonton's Keng Chung, president of Well Resources Inc., who now spends much of his time in China.

The Calgary-based company holds the patent on Chung's SELEX-Asp process for all areas except China, where PetroChina earned the rights to the patent by building a 500-barrel-a-day SELEX-Asp demonstration plant at its Panjin refinery.

For years, Chung's dream was to produce a refinery-ready feedstock called "Alberta Premium" — created by adding pentane (a solvent produced from petroleum) under pressure to tanks of bitumen, forcing the heavy "bottoms" to fall out.

That material, called asphaltene, has many uses, including production of car-

bon-fibre threads — which sell for \$15 a gram.

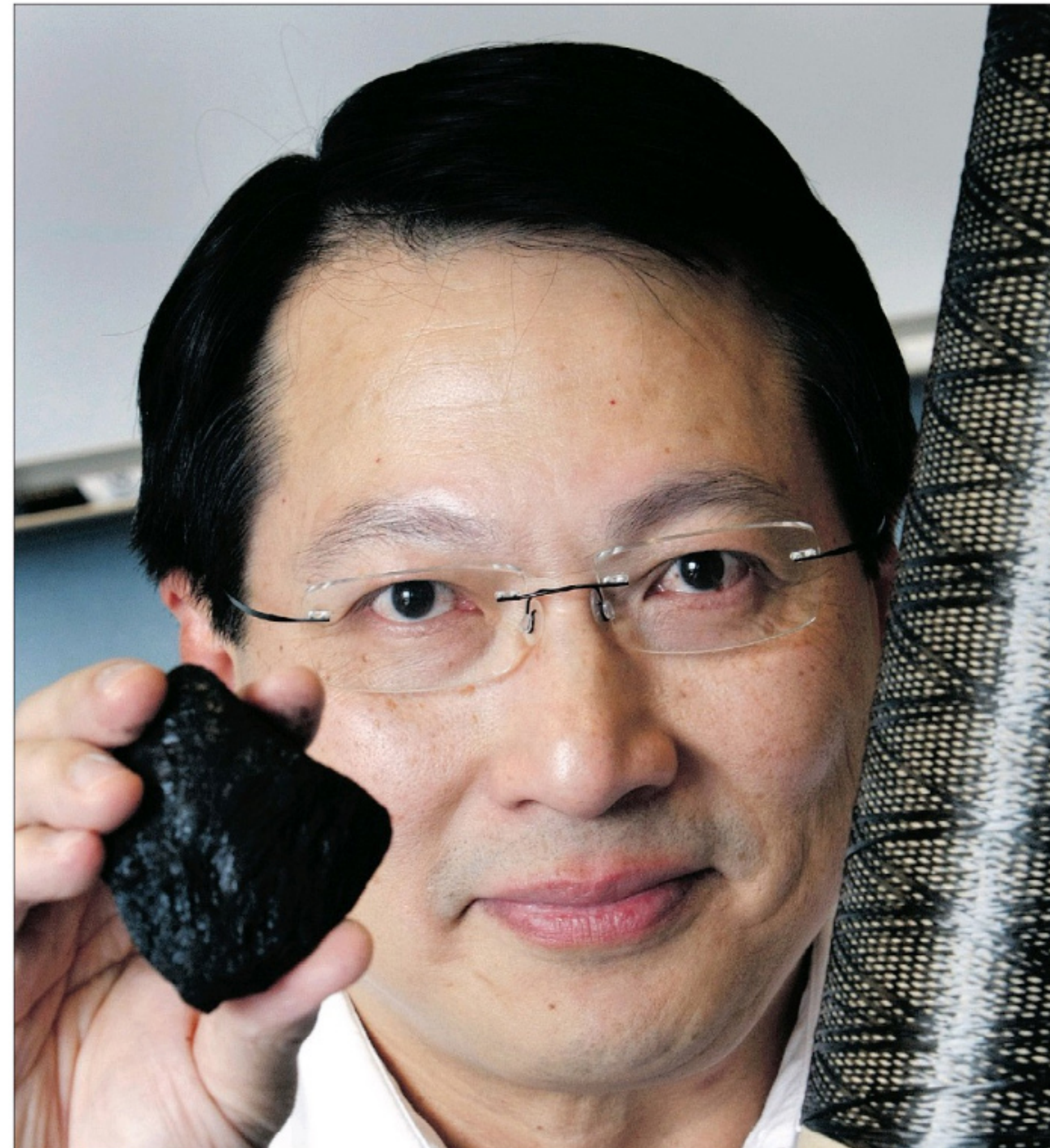
But asphaltene is also why bitumen can harden to resemble a hockey puck until it is heated or diluted with solvents, and why it often trades for about \$20 a barrel less than light oil.

Upgrading removes that "junk" using hydrogen, created from natural gas, to alter the molecular structure, Chung says. "But you are left to dispose of the coke and sulphur."

Coke is stored on Fort McMurray mine sites, while yellow mountains of sulphur await sale near upgraders. By comparison, there is potentially a huge market for carbon fibres from bitumen asphaltene, which currently is produced only in coal plants, Chung said.

Chung was the first student of University of Calgary engineer Roger Butler, who developed the now common SAGD (steam and gravity drainage) method for tapping deep oilsands deposits. Chung was also a researcher with Syncrude and the old Alberta Oil Sands Technology and Research Authority (AOSTRA).

His students went on to senior jobs in China's petroleum industry and



Keng Chung holds a chunk of asphaltenes, a bitumen byproduct from which valuable carbon fibre can be created.

paved the way for SELEX-Asp to be developed there.

"We all shared the dream of doing this, and then later they had a sandbox

and invited me to play," he said.

Chung's partner is Suoqi Zhao, a senior official at the China University of Petroleum in Beijing. Chung says 500

people are involved in his project at PetroChina and the university, which has 50,000 students.

"They are very serious about re-



A process that uses a chemical to release the oil from bitumen could replace upgraders such as Syncrude's Mildred Lake facility in Fort McMurray, Chung says.

search in China. There is a lot of energy and enthusiasm for this because they can see it working for Middle East heavy oil and the heavy deposits in Venezuela and Alberta," he said.

In an interview, Eddy Issacs, CEO of Alberta Innovates — Energy & Environment Solutions, said "there are several projects that are working on adding supercritical solvents," and China University is doing "credible work" in this research field.

But although the Panjin test plant is operating, "we have to ask, is it a commercial operation?"

Chung said what has been learned at the plant will be used to build a 100,000-bpd plant in Malaysia, where he has business contacts. The plan is to ship in heavy oil from the Middle East and ship out premium crude to refineries in Southeast Asia.

He is still disappointed that Canadian firms did not invest in the technology in the early 1990s.

"The oil price was very low. But we began collaboration with China in 1997, with the China University, then with the Ministry of Science and Technology and

National Natural Science Foundation of China, and then PetroChina. They see the value, and are looking into the future," he said.

"Upgrading is a dinosaur industry, and I have a duty to educate everyone in Alberta."

He adds that his process is more environmentally friendly because it doesn't need hydrogen from natural gas.

"So there wouldn't be these 'dirty oil' campaigns anymore."

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