Spherical agglomeration may be the answer—
Oil from Alberta's tar sands

Spherical agglomeration, an NRC-developed method of separating mixtures by causing one or more components to pelletize into spheres, is receiving attention from Canadian oil men. It may be the way of the future for recovering the bitumen from Alberta's tar sands.

For Canadians, one of the most important factors in the equation balancing future energy supplies and needs is the bitumen locked in the vast tar sand tracts of northern Alberta. The total reserves of synthetic crude oil that lie under these forested plains has been estimated at 1,000 billion barrels, of which 250 billion barrels (or 70 per cent of the Middle East reserves) are recoverable by today's extraction technology. The problem, at least for the present, is in the expense of removing the sand from the bitumen, a task made more difficult in many areas of the beds by the presence of clay, which tends to bond the two materials together.

One attractive alternative to the existing technology that has received attention in the last few years is a process developed by the National Research Council of Canada's Division of Chemistry called Spherical Agglomeration. Dr. Ira Puddington, who recently retired as Director and now acts as a consultant to the Division, is one of the principal scientists involved in the work. According to Dr. Puddington, Spherical Agglomeration is a general technique for separating the components of many kinds of mixture, with tar sand extraction currently one of its more visible applications.

The name of the process describes its essence. When a mixture is suspended in an appropriate liquid and the right experimental conditions introduced, one or more of its components agglomerate or "pelletize" into spheres that separate readily from the remaining material.

John McAulay

One of the giant buckwheel excavators used to mine the Athabaska oil sands stands silent against a late autumn afternoon. These massive machines weigh 1,700 tons (1 530 t) and are equipped with a bucketwheel (right of center) capable of scooping up over 50,000 tons (45 000 t) of oil sand every day.