

# Mix and Flow of Matter

## Section 1.0 – Fluids are used in technological devices and everyday materials

### 1.1 – WHMIS Symbols and Safety Procedures

Use the **Safety Notes** and the **Practice Test**

- Safety Notes - <http://www.edquest.ca/Labs/labsafety.html>
- Practice Safety Test - <http://www.edquest.ca/Tests/safety.html>

### 1.2 – The Many Uses of Fluids

A **fluid** is anything that has no fixed shape and can flow. Usually it is a **liquid**, or a **gas**.

InfoBIT: **Agrifoam** is a fluid – a shaving-cream-like material that can be sprayed onto plants to protect them from freezing.

#### Fluids Make It Easier To Use Materials

*Fluids move materials, even if they are solids.*

##### Slurries

A mixture of water and a solid (like dirt and water) is called a **slurry**. Slurry technology – the transport of solids in water – has many important applications. One of these is mining in the Oil Sands. Syncrude originally used conveyor belts to move the oil sand from the mine to the processing plant, but found it was too expensive. It is now pumped to the plant by way of a slurry pipeline.

##### Fluids Become Solids

*Fluids take the shape of their containers.*

Many solid materials are originally prepared as fluids. Glass, Steel and concrete are examples where the solids are processed as liquids to shape them easier, so then they cool or dry as a solid they are in the form they should be.

##### Fluids Can Hold Other Materials

The ability of fluids to **flow** and **carry other materials** makes them useful in many different applications. Toothpaste has a **'binder'** (which is made from wood pulp) that keeps all of the ingredients together.

##### Useful Properties Of Fluids

Fluid properties enable a wide variety of uses to be possible. By understanding these properties, such as: density, buoyancy, viscosity and compressibility; technological devices can be designed which make use of these properties.

A common method of processing mineral ore is called **froth flotation**. Find out more: [http://www.engr.pitt.edu/chemical/undergrad/lab\\_manuals/flotation.pdf](http://www.engr.pitt.edu/chemical/undergrad/lab_manuals/flotation.pdf)