



The company KTM Industries at 5597 W. Grand River Avenue, Lansing MI 48906 produces a cornstarch product called Green Cell, a biodegradable foam that KTM uses to manufacture various commercial products such as children's toys and packaging materials. This product is digestible by humans and it dissolves completely in water into its liquid state (liquid cornstarch).

During the manufacturing process, in which the liquid is processed into a solid-like foam with a high porosity, a quantity of excess foam is produced from the manufacture of the KTM Industrial product. This is the excess of industrial production and it is necessary to dispose of this waste.

Since cornstarch is biodegradable, burning it is a completely viable option. In fact, cornstarch is a nearly 100% hydrocarbon (details below) made of carbohydrates and water (about 99%) and its combustion in open air produces no chemical pollutants. When it burns it is consumed completely, like Styrofoam and other light plastics, which are also 100% hydrocarbons. In addition, unlike wood and other cellulosic substances (paper, tissue, matches, etc.) cornstarch does not leave behind a char residue. The only products of combustion are water and CO<sub>2</sub>, the same as in the exhaled breath of every human being.

For this reason, burning of the KTM excess waste Green Cell is completely safe environmentally, and is the recommended option for disposal.

**Addendum:** Cornstarch description, properties, and chemical constituents.

**Cornstarch**, or **cornflour**, is the starch of maize, or corn. It has a distinctive appearance and feel when mixed raw with water or milk, giving easily to gentle pressure but resisting sudden pressure. It is usually included as an anti-caking agent in powdered sugar.

Cornstarch is often used as a binder in puddings and similar foods. The most basic such pudding may be made only from milk, sugar, cornstarch and a flavoring agent.

It is also used as a thickener in many Chinese recipes and French sauces, although in the latter case it is generally used as a time-saver to replace more traditional, time-consuming methods.

**Cornstarch also has many uses in the manufacturing of environmentally-friendly products.** For example, in 2004, the Japanese company Pioneer announced a biodegradable disc made out of cornstarch (from Wikipedia.com).

#### **Chemical Constituents of Cornstarch:**

**Carbohydrate** 87.5 to 89.5 %

**Moisture (water)** 10.0 to 13.0 %

**Protein** <0.1 %

**Fat** 0.2 %

**Ash** 0.2 %

**Crude Fiber** 0.1 %

**Definition of Carbohydrates:** Carbohydrates are chemical compounds that contain oxygen, hydrogen and carbon atoms. They consist of monosaccharide sugars of varying chain lengths and that have the general chemical formula  $C_n(H_2O)_n$ .

Certain carbohydrates are an important storage and transport form of energy in most plants and animals. Carbohydrates are classified by their number of sugar units.