Main end-uses of bentonite

**Foundry**
Bentonite is used as a binding material in the preparation of molding sand for the production of iron, steel and non-ferrous casting. The unique properties of bentonite yield green sand molds with good flowability, compactability and thermal stability for the production of high quality castings.

**Drilling**
Another conventional use of bentonite is as a mud constituent for oil and water well drilling. Its roles are mainly to seal the borehole walls, to remove drill cuttings and to lubricate the cutting head.

**Pelletizing**
Bentonite is used as a binding agent in the production of iron ore pellets. Through this process, iron ore fines are converted into spherical pellets, suitable as feed material in blast furnaces for pig iron production, or in the production of direct reduction iron (DRI).

**Pet Litter**
Bentonite is used for pet litter, due to its advantage of absorbing refuse by forming clumps (which can be easily removed) leaving the remaining product intact for further use.

**Paper**
Bentonite is crucial to paper making, where it is used in pitch control, i.e. absorption of wood resins that tend to obstruct the machines and to improve the efficiency of conversion of pulp into paper as well as to improve the quality of the paper. Bentonite also offers useful de-inking properties for paper recycling. In addition, acid-activated bentonite is used as the active component in the manufacture of carbonless copy paper.

**Construction and Civil Engineering**
Bentonite in civil engineering applications is used traditionally as a thixotropic support and lubricant agent in diaphragm walls and foundations, in tunnelling, in horizontal directional drilling and pipe jacking. Bentonite, due to its viscosity and plasticity, is also used in Portland cement and mortars. According to directives of the European Union, bentonite is recommended as a sealing material in the construction and rehabilitation of landfills to ensure the protection of groundwater from the pollutants.

**Special Applications**
Further to the above mentioned uses, processed bentonite has a wide range of industry applications, such as detergents, pharmaceuticals, cosmetics, oils & food, paints, dyes and polishes.
From bentonite mines on Milos, approximately 1.3 million tons of bentonite are extracted annually and are exported around the world, after having been processed.

**Markets/Segments**
- Foundry
- Iron and steel making
- Environmental protection, construction projects
- Oil drilling
- Absorbents
- Paper Industry
- Other special applications

**Main End-Uses**
- Binder for green sand foundry molds for metal casting
- Binder for the production of iron ore pellets
- Thixotropic additive for foundation engineering, diaphragm wall construction, grouting and tunneling
- Component of soil sealants
- Thixotropic additive for the production of drilling mud
- Pet-litter
- Additive in paper manufacturing, de-inking of recycled pulp and autographic papers
- Additive in detergents, desiccants, waste water treatment, wine purification

Images:
1. Bentonite mine on Milos
2. Open-air natural drying and processing unit of bentonite on Milos
3. Iron melting process unit in a foundry
4. Automotive component from a foundry