

The need to avoid possible hydrogen peroxide pockets and the subsequent rise in temperature in the reactor, makes it necessary to use an impeller stirrer that allows a complete homogenization to be obtained.

The oxidation reaction of the mixture occurs at atmospheric pressure and at 95° C, utilizing a cooling system for the reactor by a forced water circulation jacket.

At the conclusion of the reaction, which is evidenced by the sudden fall of temperature, the residual products are cooled to 40° C and transferred into the neutralization reactor by gravity.

The neutralization reaction occurs in the enamelled reactor through the addition of water and lime.

After this treatment, the products are transferred into a properly modified concrete mixer by hermetic seal duct.

A measured quantity of cement, coming from a silo, and the sand, additioned by belt conveyor, flow together into the same concrete mixer.

At the end of this treatment a concrete is obtained, it is transferred into vibrated cement containers that are sealed with special adhesive and cement plug.

The sealed containers are stocked in a special depot of the Military Area in accordance with the destruction programme of the Y-PhDA and the laws in force about the stocking of toxic and noxious products.

The whole plant, the different subsystems and the piping are constructed in a manner to ensure that the destruction process can be easily verified.

2.4. Safety features

The plant was projected to ensure the "risk prevention" for the environment, the staff and the limitrophe zone.

The fundamental elements of the project imply the use of oxidation and neutralization reactions at atmospheric pressure, low temperature (less than 95° C), with controlled addition of reagent and absence of great production of vapours and gases.

These conditions allow the elimination of the overpressure in the reactors, excluding the possibility of breaches by explosion.

The plant is provided with a suction system that maintains the inner part in light depression, it is also provided with activated carbon filters to absorb possible vapour leaks from reactors.

A sensor system has the task of checking the presence or absence of toxic atmosphere in the reactor room.