Secomoc

Partnership in frangibility expertise

For safety reasons, Secomoc's customers have to substantiate the frangibility of their hydrocarbon vertical fuel tanks. In all the cases where the Codres rules are not applicable, the supplier systematically calls on Cetim.

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The Directions régionales de l'environnement, de l'aménagement et du logement (Dreal, French: Regional Departments of the Environment, Planning and Housing) ask oil companies to check the frangibility of their tanks in order to guarantee containment of the liquids stored. Today an old tank, still in operation, is not necessarily frangible. *"In such a case, we are asked to modify the structure of the tank and create a head fuse in order to make the tank frangible"*, Michel Belguiral, Chairman and CEO of Secomoc and Chairman of the Codres Management Committee explains. (Codres: Code de construction des réservoirs de stockage cylindriques verticaux, Construction code for vertical cylindrical storage tanks).

As a matter of fact, it is mandatory to make sure that, after any incident (fire, explosion, etc.), there will be no risk of fuel stored in a fixed-roof tank being spilled into the environment. Therefore, in case of accidental overpressure, the roof or the wall-to-roof junction must break first.

Verification through numerical simulation

One of the rules of the Codres allows a company to substantiate, with a simple formula, the frangibility of these liquid storage tanks. But certain existing tanks, in particular the small ones, stiffer than the big ones, do not necessarily comply with the conditions of application of the Codres. Then there is only one possible solution: to verify the behaviour of each tank through numerical simulation.

For this purpose, Cetim uses the Abaqus structure calculation software and has modelled, at Secomoc's request, approximately twenty small hydrocarbon tanks during the last three years. This is the case, for instance, with tank No. 10, having a capacity of 1,700 m^3 (12 m in diameter, 15 m high) and containing gas-oil. The simple rule of the Codres is not applicable as the mechanical modification designed by Secomoc to make this tank frangible is not provided for by Codres. Hence there is necessity to carry out a complete numerical simulation.

By calling on Cetim, Secomoc benefits from the expertise of the Frangibility Centre and from the heavy calculation means at its disposal.

Cetim's asset

Cetim has strong expertise in the verification of the frangibility of vertical tanks. Cetim regularly works within the Codres to improve the design methods for these tanks. The studies carried out during the last 25 years in the field of frangibility have made it possible to develop a high-performance method of finite element calculation.

OUR CUSTOMER

Corporate name
Secomoc (Sud est construction maintenance d'ouvrages chaudronnés)

Activity
Sheet metal working for worksites, specialised in construction and repair of storage tanks for all liquid products (non transportable tanks with diameters between 6 and 100 m, belonging mainly to oil companies). Secomoc comprises a group of companies whose top holding is the Maten Company (Montage, assistance technique, etudes, négoce) (Assembly, technical assistance, studies, trade).

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