Boilerhouse 4 pleased with Mexel® 432

An interview by Gertrude MAES, journalist.

Five years ago, Shell Pernis Boilerhouse 4 was still given a lot of trouble by deposition of scale, corrosion and fouling in both the air coolers and the cooling water mains system of the air compressors. Mexel® 432 eliminated these problems. One year of testing produced positive results, and this induced Kees den Heijer, then factory co-ordinator of Boilerhouse 4, to decide to deploy the product in the air coolers of all three air compressors. Now, five years later, Boilerhouse 4 is still pleased with Mexel® 432, Den Heijer explains.

Shell Pernis Boilerhouse 4 produces utilities for the entire Shell Pernis industrial estate. Its main product, steam, is put to various uses, including driving pumps and compressors in the refinery, heating purposes in the different factories (e.g. reboilers, tanks and pipes) and heating offices.
Another product is compressed air, used mainly for the instruments in the many factories. Cooling is an important factor here. The water that these systems use for cooling is brackish water pumped from the river Maas, full of silt and fouling, which is directed through the systems via a web of meshes. Being filled with mud, silt etc, the water attacks the cooling system in three ways: fouling deposits; corrosion; and scale deposit, especially in the cooler pipes. Developing on hot pipe surfaces, scale isolates the pipe from the cooling water. As a result the wall of the pipe will become even hotter, and eventually will start leaking. Another problem is blockage, resulting from the fouling in the web of meshes. The consequences include leakage and high cost of maintenance and the frequent need to replace pipes in the coolers. Prior to the introduction of Mexel® 432 the coolers had to be dismantled and cleaned once every eighteen months. A labour-intensive, costly and tedious "unergonomic" toil. All this strongly reduced the availability of the air compressors.

Boilerhouse 4 therefore looked for a solution. One of his colleagues drew Den Heijer's attention to Mexel® 432. Mexel® 432 is a biodegradable product that works using detergent properties on the surfaces of the system. By forming a thin film on the walls of the cooling-water pipes it renders them as smooth as glass, making it impossible for mud to become attached, keeping clean the surfaces and giving corrosion no chance.
Mexel® 432 is not the only solution for problems of this kind. Cooling water can be 'killed' using chlorine. Chlorine does not, however, constitute a remedy for corrosion and scale deposit, nor is it biodegradable. Another method involves dissolving copper in water. Again, this method has little or no effect on corrosion and scale. In short, while there are a number of products on offer that tackle part of the problem, none of these products combines an effective simultaneous tackling of various problems with biodegradability. Mexel® 432 does.

Photo 1: Cover of cooling system corrosion and scale deposit without Mexel® 432 treatment

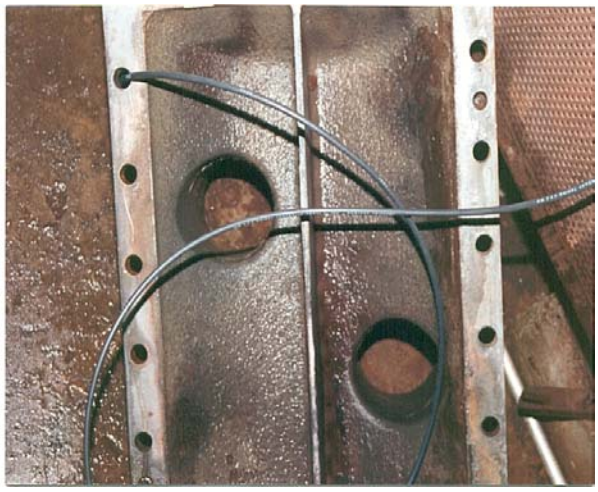

Photo 2: Cover and outlet of cooling system treated with Mexel® 432.

Boilerhouse 4 was interested in finding out whether Mexel® 432 would live up to its promise and would actually produce an increase in efficiency and, in particular, a decrease in costs of maintenance and repair. In 1998 Mexel® 432 was first applied to the cooling system of air compressor K-1108.
During a one-year period temperature and pressure were carefully monitored and found to remain nearly constant. This warranted the conclusion that the system stayed 'clean' and there was no need to open it for

maintenance purposes. A significant saving in costs and one tedious toil less. A pleasant circumstance, moreover, was the fact that Mexel® staff from both France and the Netherlands supervised the test period. The users were pleased with the test results.
On the basis of the test results it was decided to extend the application of Mexel® 432 to include the cooling systems of air compressors K-1107 and K-1109. The three compressors have now been treated with Mexel® 432 for five years. Boilerhouse 4 continues to be pleased with the results. During the five years none of the systems needed to be opened for maintenance purposes. Systems of this kind may be used for a period of six years without being opened for inspection. After this period they need to be presented for inspection under the Nuisance Act. Expectations are that Boilerhouse 4 will be able to complete the six-year period without any interim maintenance or replacement of components.

On the face of it, Mexel® 432 appears to be an expensive product. But is it really? The introduction of the product into the cooling system does require an initial investment and the price per litre of the product itself is considerably higher than the price of chlorine, for example. In the long run, however, Mexel® 432 easily pays for itself. The quantity needed to keep the film intact is extremely low: once every 24 hours a small dose is added to the cooling water. Boilerhouse 4 has long since recovered the costs, due to savings on labour-intensive maintenance and due to the fact that until now there has been no need to replace components.

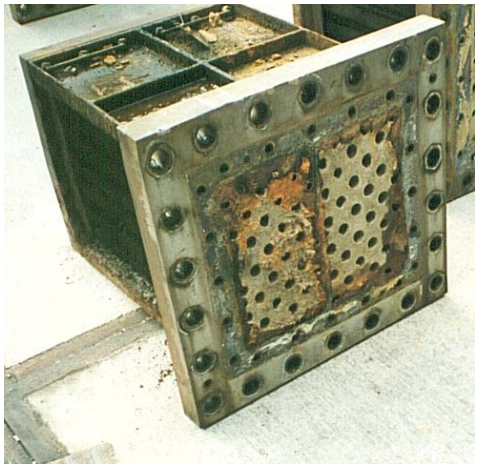

Photo 3: Cooling block without Mexel® 432 treatment Photo 4: Cooling block with Mexel® 432 treatment

Claiming that the use of Mexel® 432 is environmentally safe and that it would be in keeping with Shell Pernis' vision on durable enterprise would be overstating it, Den Heijer feels. After all, Mexel® 432 is a product that, via the discharge of cooling water, might end up in the river Maas. On the other hand, Mexel® 432 is fully biodegradable and has been approved by the Department of Public Works (Rijkswaterstaat). Moreover, the quantity that might end up in the cooling water is minimal, thanks to the way the product works. The film is affected to some extent by organisms that 'eat' it. As the organisms end up in the river, being discharged together with the cooling water, some of the product ends up in the Maas.

Of course, the Boilerhouse 4 cooling systems are not the only systems where the use of Mexel® 432 could effect savings in maintenance costs. "Shell Pernis will have more cooling systems that could save on maintenance by preventing scale deposit", Den Heijer suspects.
This goes not only for Shell Pernis, wherever water is used for cooling purposes (examples would be the navy, the shipping industry and power stations) Mexel® 432 can contribute in a sound way to an increase in efficiency, a saving on maintenance and a prolonged life of the components of the cooling system.

"There will probably be similar products in the market, but Mexel® 432 obviates the need to go and look for them", Den Heijer says.