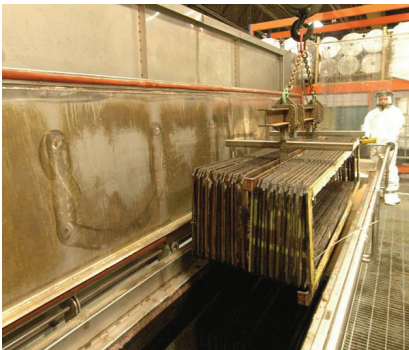


Insulation Chemical Abatement (Asbestos & B-stage Insulation)



Summary

In 2001 Delstar Energie was established to answer a need in rotor pole refurbishment.

Typically, when manufactured, most hydro power generators and large motors electrical insulation was asbestos based. The commonly used method used to get rid of that insulation consisted of burning the windings in an oven and to mechanically clean all copper.

This method had multiple flaws

First, the burn off process considerably altered the copper properties

It was changing copper temper by annealing it, modifying its mechanical and hardness properties. Also this process could promote hydrogen embrittlement which, in certain condition would cause the copper to endorse a brittle temper.

Second the mechanical grinding would alter the copper dimension

Reducing coil copper content. Also, due to its now annealed condition, coil dimensions and shapes could be modified.

And last but not least

The process would promote asbestos fiber to be airborne, as we all know, is not impossible but difficultly manageable to ensure proper health safety for the workers in such conditions.

Development...

To improve this process Delstar Energie has developed an asbestos removal chemical process. After multiple trials and lots of R&D Delstar Energie was really proud to be the first of the industry to offer asbestos abatement by chemical process in 2002.

When we compare to the original burn off process, we see that all the negative consequences are eliminated. Coils being immerse in a liquid solution completely eliminate any airborne asbestos particles. And the copper is now unaltered and as good as newly manufactured.

These days, the process his even safer since asbestos identification is done at reception with a micro vacuum analysis. These operations occur in a negative pressure restricted access area.

The last improvement to our insulation removal process was made in 2016. Polyamide (Nomex) with epoxy coated b-stage now being the standard insulation in the industry, cause the removal of the old insulation to be close to impossible. Two options were possible, either burn off and or mechanical insulation removal with all the consequences mentioned above.



Conclusion

Keeping its chemical immersion approach, Delstar Energie is really proud to offer chemical abatement for most common types of insulations.