

**Removing trapped hydrogen isotopes via high temperature oxygen bake, experiments carried out in April 2010:**

Long-term trapping of tritium in the vessel walls is a critical issue in minimizing the tritium inventory on site of a fusion burning plasma device such as ITER. Recent experiments on DIII-D have demonstrated the ability to remove a significant fraction of hydrogen isotopes that are trapped in hard films on the vessel surfaces using a technique known as thermal oxidation (or oxygen bake). In this technique, the vessel walls are heated to 350 C and then oxygen gas (mixed with helium for safety) is introduced to a moderate pressure. Consistent with laboratory tests of this technique, these DIII-D experiments show virtually all of deuterium trapped in hardened carbon-deuterium films to be removed. Subsequent experiments showed that even though the vessel walls were exposed to large quantities of oxygen, good confinement plasmas could be re-established within a few plasma shots, indicating that this technique can be used on ITER without risk to subsequent plasma operations.