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The Laser Megajoule cryogenic program: filling and conformation of Deuterium/Tritium targets OLIVIER LEGAIE, EMMANUEL FLEURY, OLIVIER VINCENT-VIRY, FRANCK BACHELET, MICHEL MARTIN, CEA Valduc, CEA VALDUC TEAM — In order to reach ignition on the French "Laser MegaJoule" (LMJ) facility, specific ICF (inertial confinement fusion) targets are designed. Theses targets are basically composed of a plastic microshell, which includes a solid cryogenic layer of deuterium and tritium. This layer must present a very homogeneous thickness, and its structure has to be very smooth to prevent from hydrodynamics instabilities. This presentation will describe the experimental strategy that has been chosen by CEA to study the technological facilities and the cryogenic targets needed. An integrating sphere cryostat is used to study the deuterium crystallisation and conformation. Theses experiments also contribute to build thermal numerical models of the target. Another cryostat (SFS, Studying Filling Station) is used to study scale one targets. In fact, the target is highly sensitive to its thermal environment, and cryogenic experiments with the real targets are absolutely necessary to prepare future shots on LMJ. The final operational system will be composed of more than ten glove boxes: gas handling systems, target filling process, filling cells maintenance... Last results and last delivered cryogenic machines will be presented.

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