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Laser “Mégajoule” cryogenic target program: from target fabrication to conformation of the deuterium-tritium ice layer RÉMY COLLIER, FRÉDÉRIC DURUT, BENOÎT RENEAUME, CÉDRIC CHICANE, MARC THÉOBALD, OLIVIER BRETON, MICHEL MARTIN, EMMANUEL FLEURY, OLIVIER VINCENT-VIRY, FRANCK BACHELET, LAURENT JEANNOT, ISABELLE GEOFFRAY, RONAN BOTREL, CHRISTOPHE DAUTEUIL, CYRIL HERMEREL, ALEXANDRE CHOUX, SOPHIE BEDNARCZYK, OLIVIER LEGAIE, CEA — For the French inertial confinement fusion (ICF) experiments, cryogenic target assemblies (CTAs) for the LMJ program are manufactured and filled at CEA Valduc (Dijon) in the cryogenic targets filling station (IRCC). They will be moved at about 20 K into a transport cryostat for cryogenic targets and will be driven from CEA/Valduc to CEA/CESTA (Bordeaux). Cryogenic targets will then be transferred by several cryogenic grippers on the cryogenic target positioner before shots. The CTA has to meet severe specifications and involves a lot of challenging tasks for its manufacture. To fill CTAs by permeation with deuterium-tritium (DT), the IRCC need to meet strict thermal, mechanical and dimensional specifications. To obtain a good combustion yield, a very homogenous DT ice layer and very smooth roughness at 1.5 K below the DT triple point are also required. This paper deals with the up to date main issues in the different fields of the LMJ cryogenic target program.

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