

*A liquid Li vapour-box divertor is an attractive heat exhaust solution for future fusion reactors. Previous works have established the ability of vapour shielding to protect the wall, but it has not been possible to directly determine the effects of Li vapour on the plasma parameters. Experiments to investigate this were carried out in Magnum-PSI, which is able to generate a plasma with DEMO-divertor relevant conditions. 3D printed tungsten capillary porous structures filled with Li have been used as targets. A reciprocating Langmuir probe was used to determine electron temperature and density close to the target, while the power reduction to the coolant due to vapour shielding was increased from 0% to 50%. The Langmuir probe measurements directly determined an increase of density by up to 50% while electron temperature could be inferred to have dropped by up to 33% compared to the solid target reference case.*