

Supporting Information

Ultrafine Ag/polyoxometalate-doped AgCl nanoparticles in metal-organic framework as efficient photocatalysts under visible light

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MIL-101 (Al), Ag/POM-AgCl@NH₂-MIL-101 (Al)

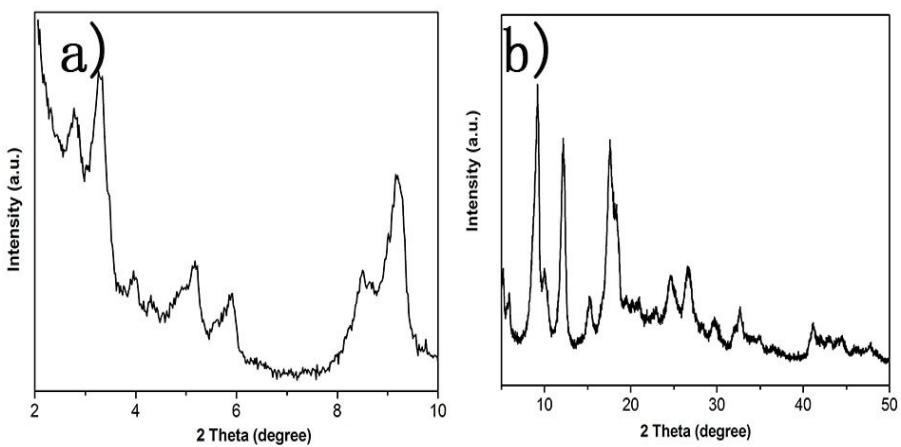


Fig. S1 (a) Small-angle and (b) wide-angle XRD of NH₂-MIL-101 (Al). Both small-angle and wide-angle XRD patterns of the NH₂-MIL-101 (Al) were well matched with those reported in the literatures. (P. Serra-Crespo, E. V. Ramos-Fernandez, J. Gascon and F. Kapteijn, *Chem. Mater.*, 2011, **23**, 2565-2572; and L. Bromberg, X. Su and T. A. Hatton, *ACS Appl. Mater. Interfaces*, 2013, **5**, 5468-5477.)

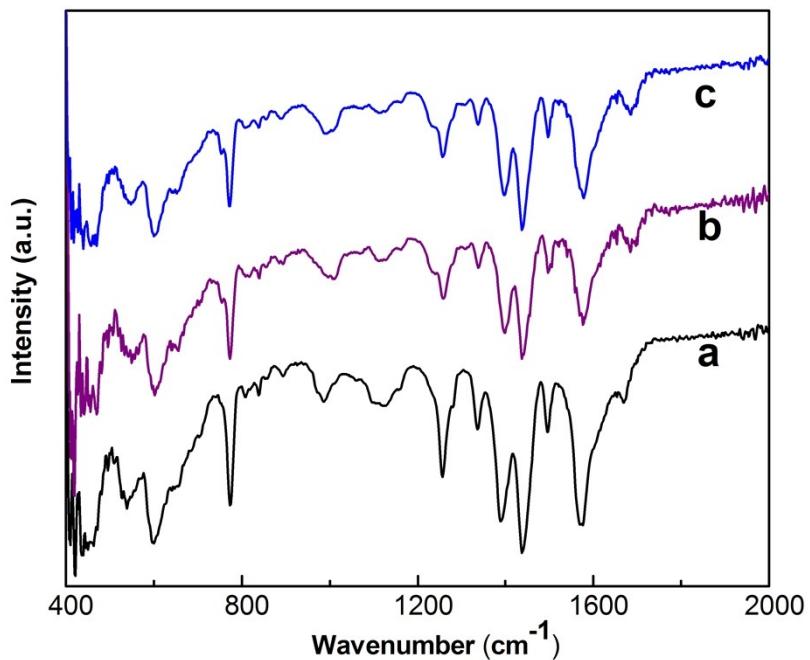


Fig. S2 IR spectra of (a) NH₂-MIL-101 (Al), (b) POM-AgCl@NH₂-MIL-101 (Al), (c) Ag/POM-AgCl@NH₂-MIL-101 (Al).

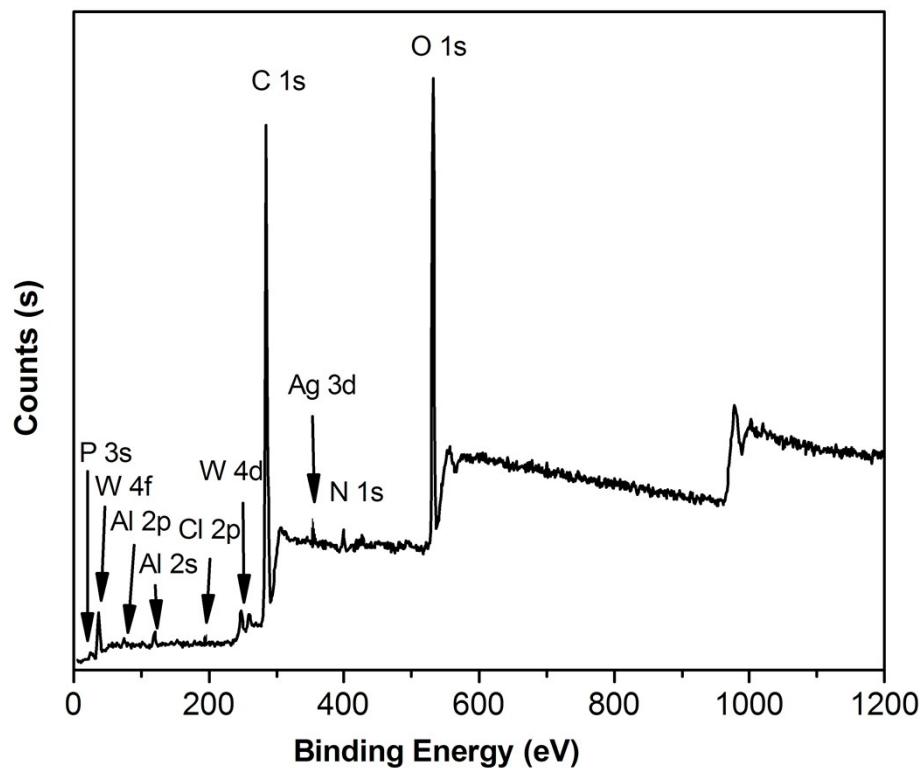


Fig. S3 The full scan survey XPS spectra of Ag/POM-AgCl@NH₂-MIL-101 (Al) composite material.

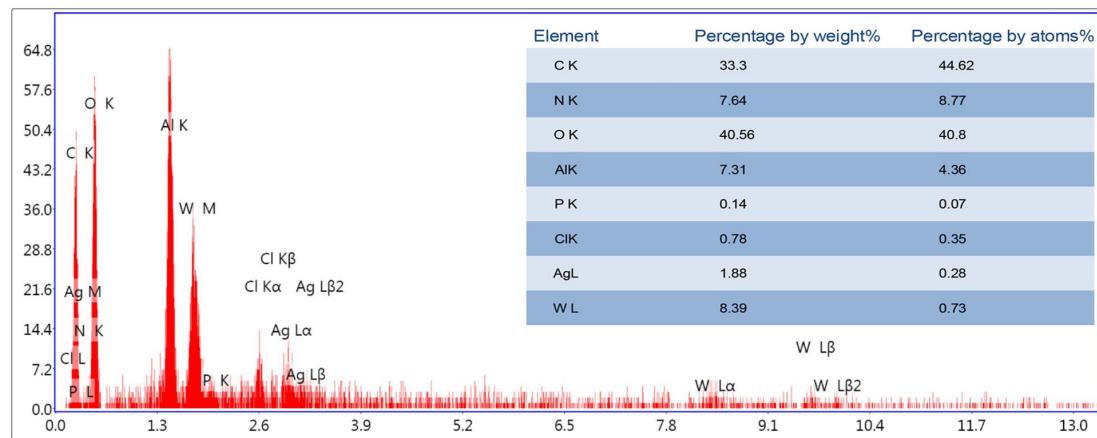


Fig. S4 The EDX spectra of Ag/POM-AgCl@NH₂-MIL-101 (Al).

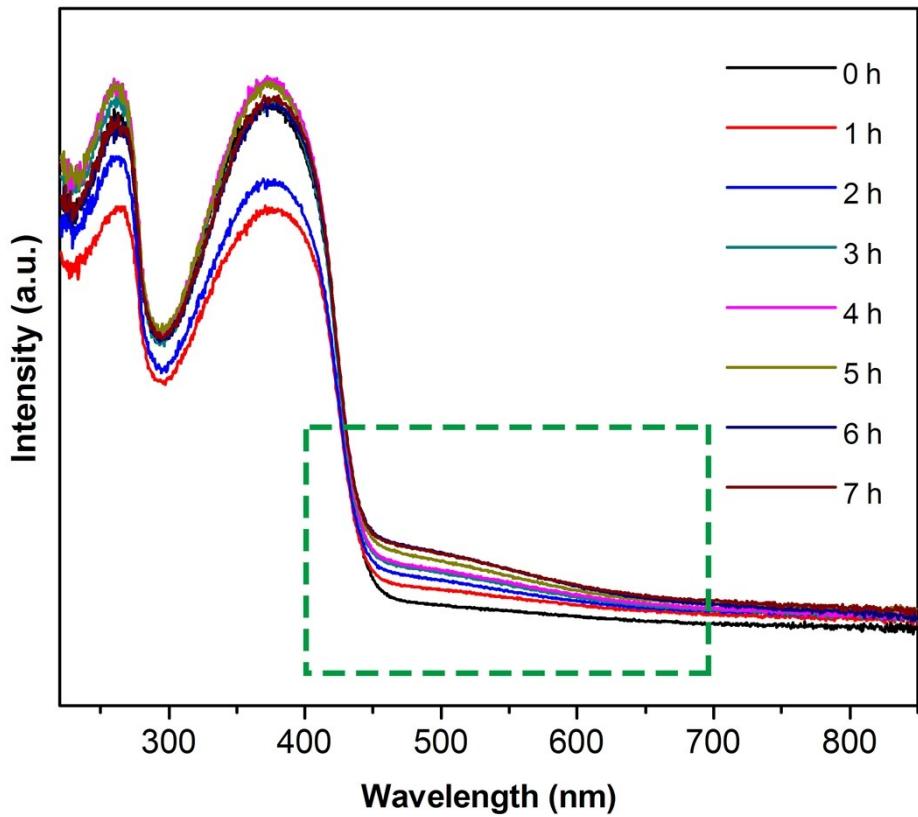


Fig. S5 diffuse-reflectance UV/Vis spectra of Ag/POM-AgCl@NH₂-MIL-101 (Al) synthesized by irradiating different time of POM-AgCl@NH₂-MIL-101 (Al) under UV lamp. The data of 0 hour was the DRS of POM-AgCl@NH₂-MIL-101 (Al). The region of 400-700 nm was marked with green rectangle frame for highlight.

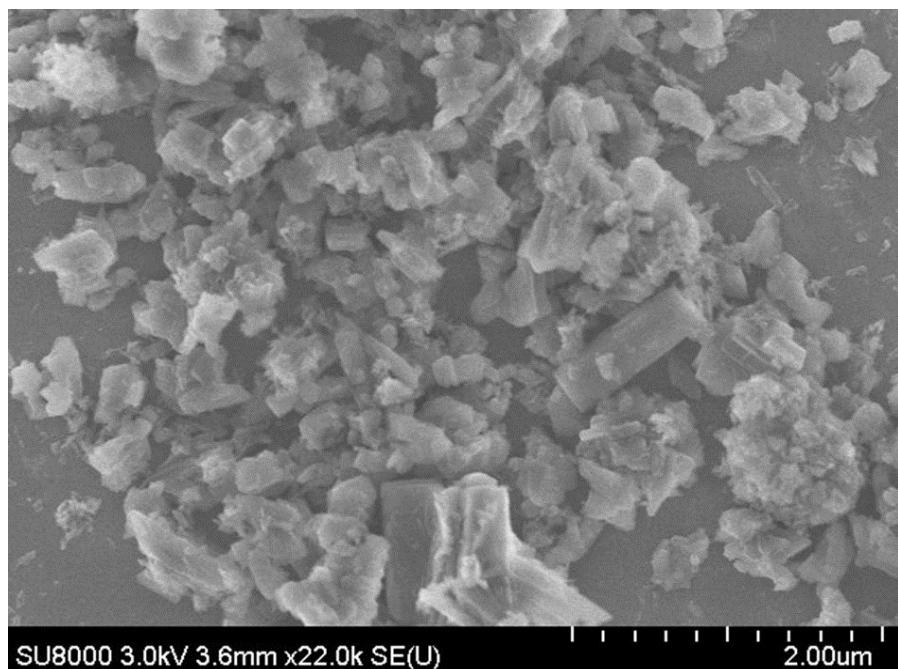


Fig. S6 SEM image of the prepared NH₂-MIL-101 (Al).

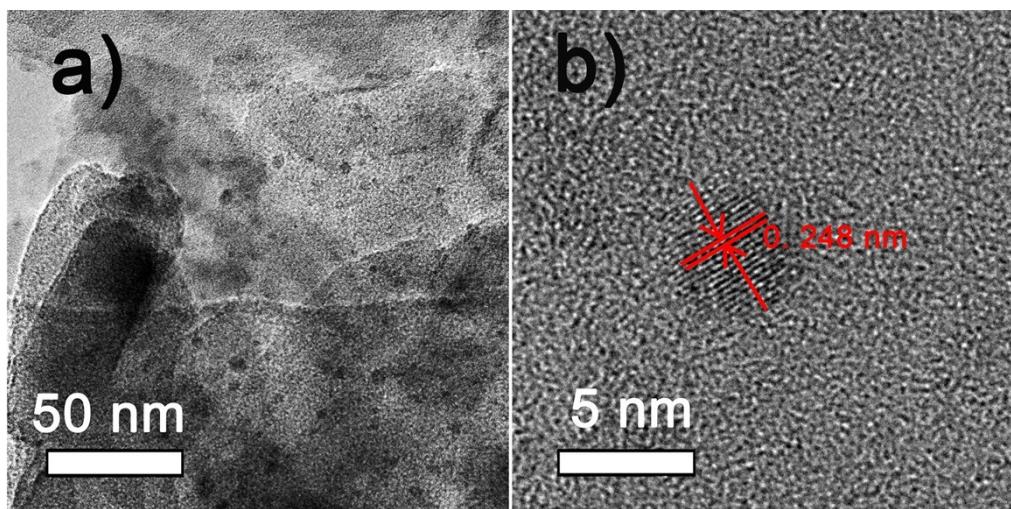


Fig. S7 TEM (a) and HRTEM (b) images of the POM-AgCl@NH₂-MIL-101 (Al).

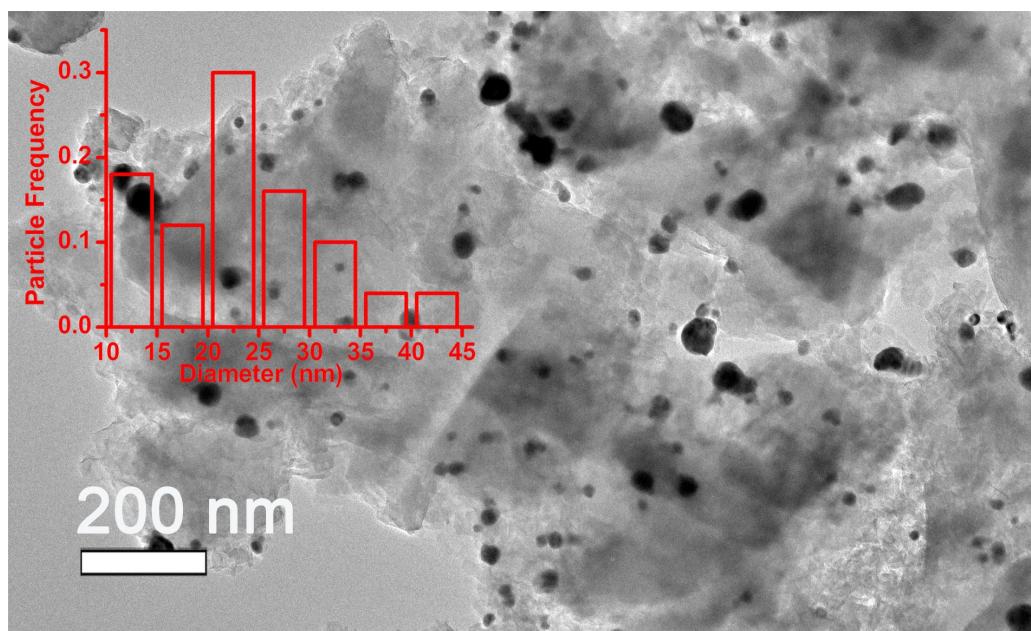


Fig. S8 TEM image of the Ag/AgCl@NH₂-MIL-101 (Al).

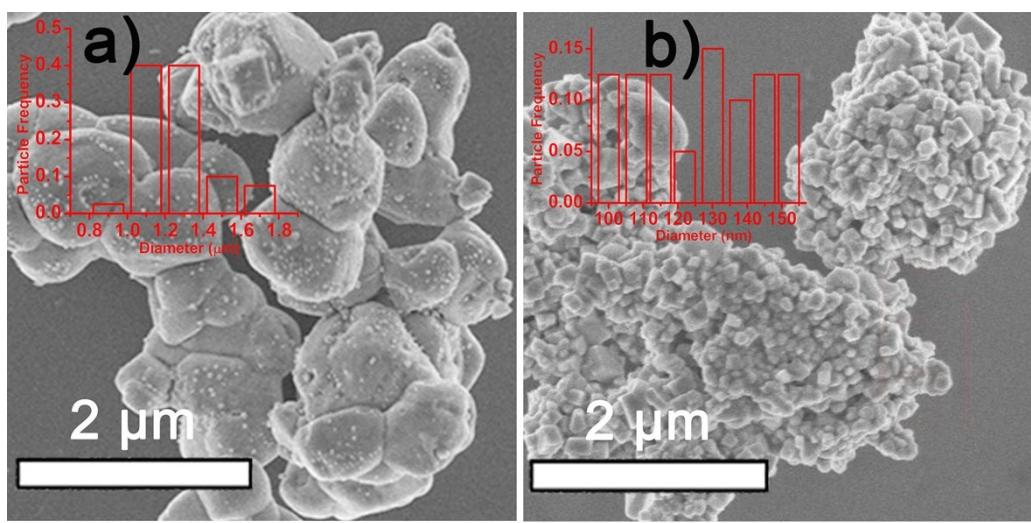


Fig. S9 SEM image of Ag/AgCl (a) and Ag/POM-AgCl (b).

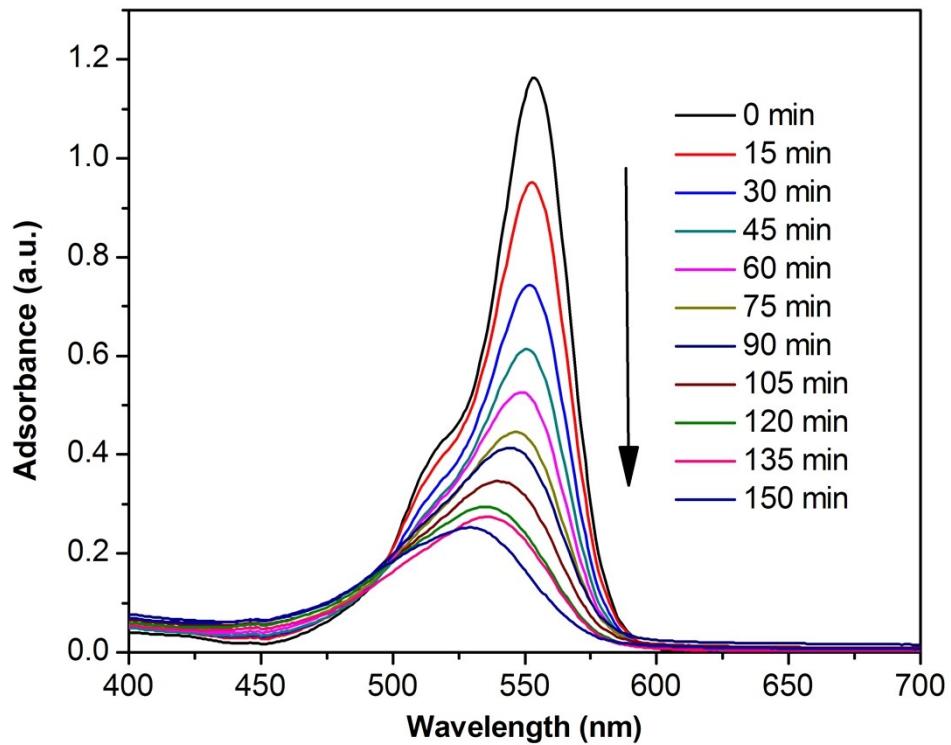


Fig. S10 Absorption spectra of the RhB aqueous solution over Ag/POM-AgCl@NH₂-MIL-101 (Al) as a function of irradiation time under visible light illumination.

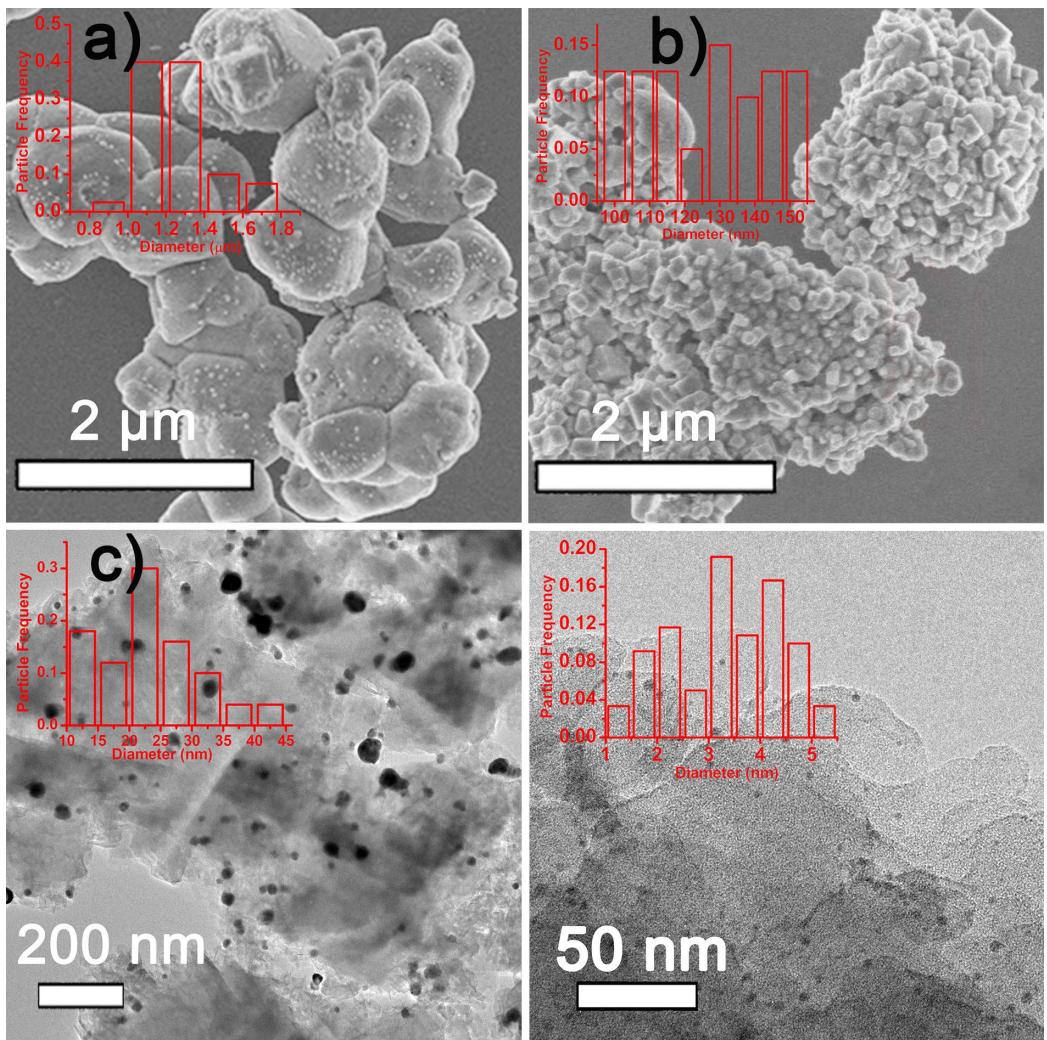


Fig. S11 SEM image of Ag/AgCl (a) and Ag/POM-AgCl (b). TEM image of Ag/AgCl@NH₂-MIL-101 (Al) (c) and Ag/POM-AgCl@NH₂-MIL-101 (Al) (d).