# Appendix A. Supplementary info

Figure S1: Photograph of quartz reactor containing 1 g of SAPO-34 after 30 h on stream with remaining volume filed with SiC.

Figure S2: Photograph of used SAPO-34 after 30 h on stream and after evacuating the sample at 120 °C.

Figure S3: Photograph of quartz reactor containing 1 g of coked SAPO-34.

Figure S4: Used SAPO-34 after 20 h on stream at 380 °C and WHSV = 2 $h^{-1}$, with 15 mol.% of $Br_2$ in inlet gas mixture.

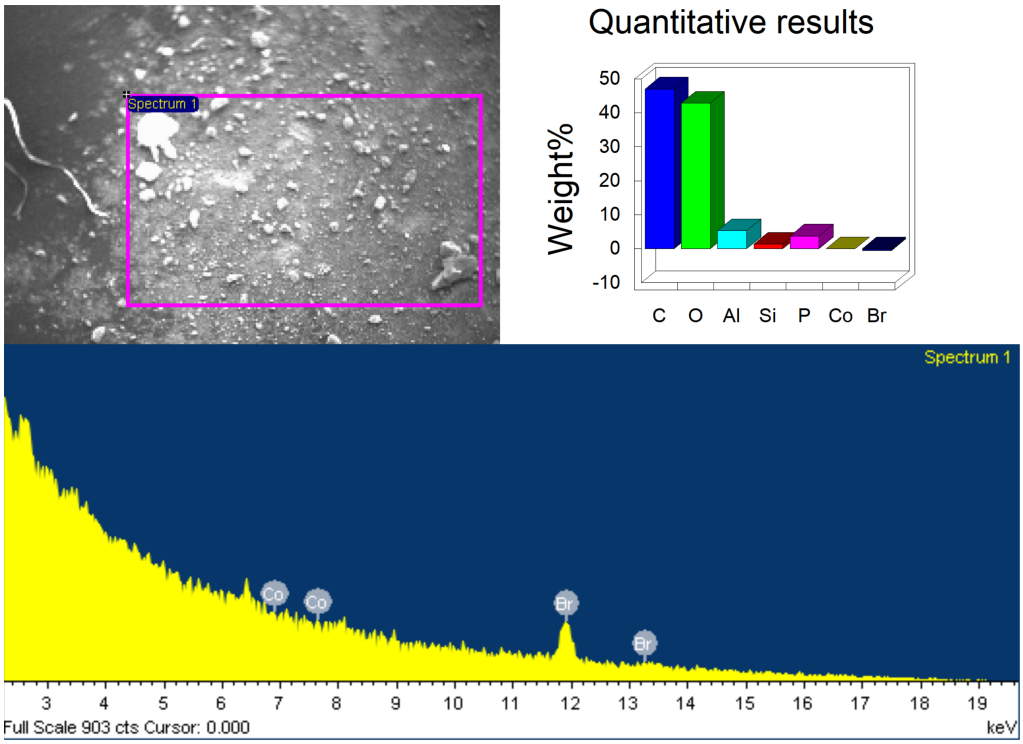



Figure S5: SEM-EDX analysis of the spent SAPO-34. Reaction conditions: WHSV = 0.6 $h^{-1}$, T = 300–365 °C, TOS = 30 h.

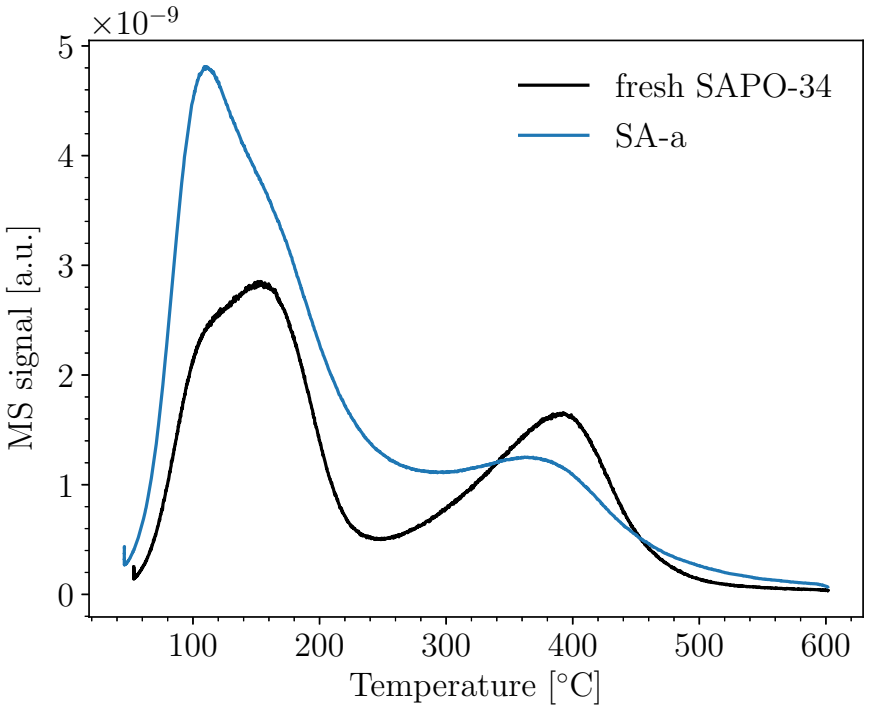



Figure S6: Comparison of $NH_3$-TPD-MS (m/Z = 17) profiles of fresh SAPO-34 with used sample SA-a.

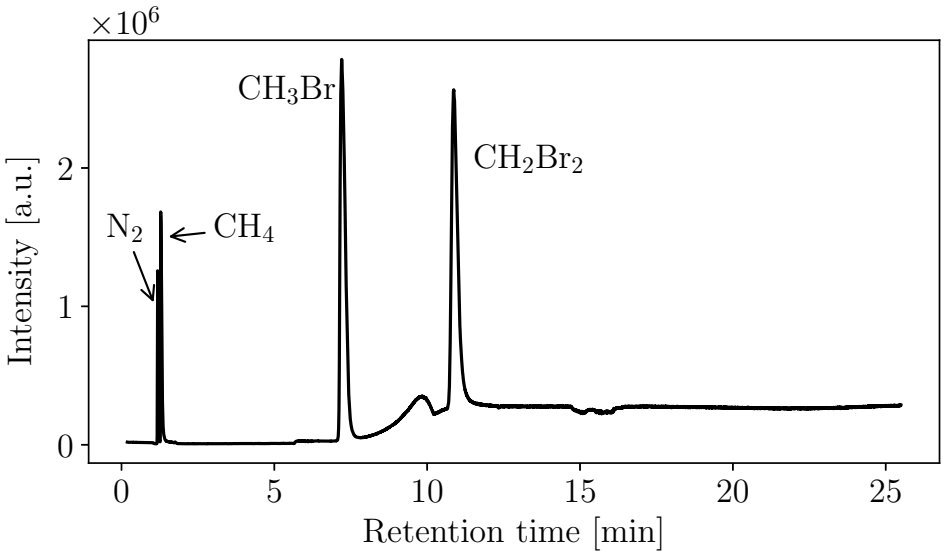



Figure S7: Example of a chromatogram (total ion) from the middle of methane bromination over SAPO-34 at 390 °C and WHSV = 0.22 $h^{-1}$.

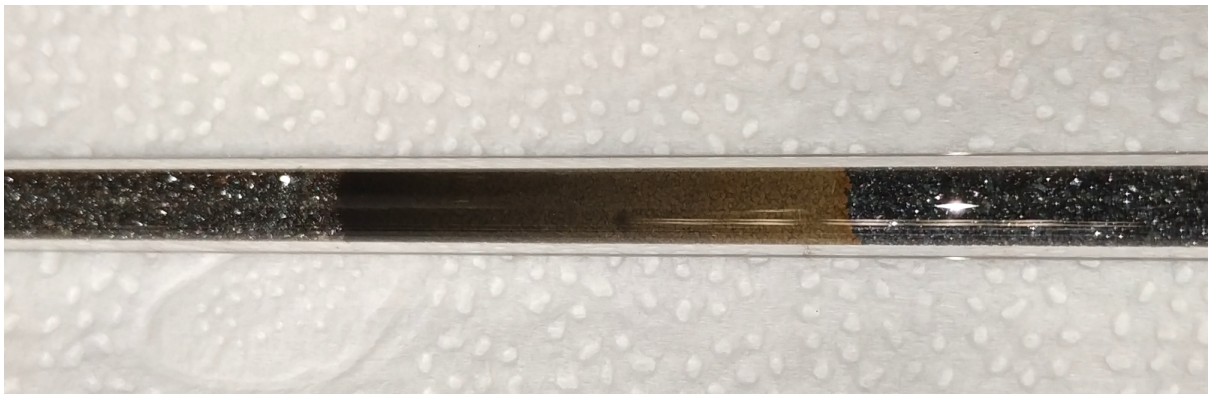
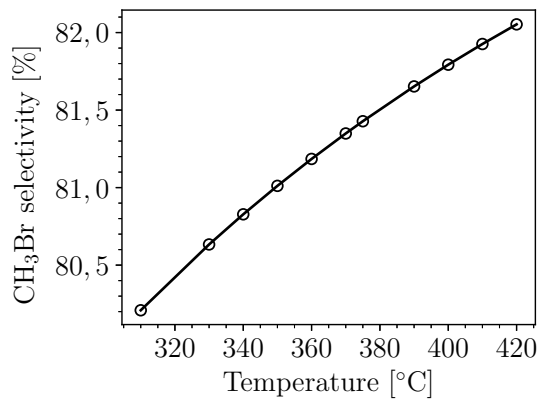
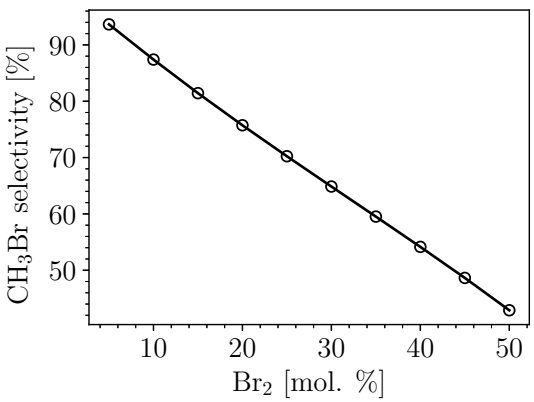


Figure S8: Photograph of quartz reactor containing 1 g of used SAPO-34 after 4.5 h reaction with $CH_2Br_2$ at 410 °C.




(a) $CH_3Br$ selectivity at different temperatures with 15 mol. % $Br_2$ in the reaction mixture.




(b) $CH_3Br$ selectivity at different content of $Br_2$ in the reaction mixture at 375 °C.

Figure S9: Equilibrium selectivity for $CH_3Br$ at 1 bar.