Synthesis and structure of the framework scandium methylphosphonates ScF(H₂O)MePO₃ and NaSc(CH₃PO₃)₂·0.5H₂O

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Supplementary Figure 1.
XRD of unsolved ScMePO-α structure prepared from a gel of composition Sc₂O₃ : CH₃PO₃H₂ : H₂O of 1 : 3 : 40 at 463 K. Scandium oxide peaks asterisked.

Supplementary Figure 2.
Matched powder XRD patterns of ScF(H₂O)CH₃PO₃.

Supplementary Figure 3.
³¹P MASNMR of NaSc(CH₃PO₃)₂·0.5H₂O

Supplementary Figure 4.
Matched powder XRD of pure NaSc(CH₃PO₃)₂·0.5H₂O

Supplementary Figure 5.
Wideline ²H NMR spectra of perdeuterated sodium scandiummethylphosphonate at a) 273 K and b) 123 K. Both spectra are uniaxial powder patterns with sharp singularities at ±21 kHz, indicating that the methyl group undergoes rotations in the fast limit of motion over the temperature range 123 - 273 K.
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Supplementary Figure 2.

Matched powder XRD patterns of ScF(H$_2$O)$_4$CH$_3$PO$_3$. Peaks from diffractometer excluded.
Supplementary Figure 3. $^{31}$P MASNMR of NaSc(CH$_3$PO$_3$)$_2$ · 0.5H$_2$O
Supplementary Figure 4.

Matched powder XRD of pure NaSc(CH$_3$PO$_3$)$_2$ · 0.5H$_2$O
Supplementary Figure 5.

Wideline $^2$H NMR spectra of perdeuterated sodium scandium methylphosphonate at a) 273 K and b) 123 K. Both spectra are uniaxial powder patterns with sharp singularities at ±21 kHz, indicating that the methyl group undergoes rotations in the fast limit of motion over the temperature range 123 - 273 K.