

Supporting Information

Additive-free reductive hydrodeoxygenation of fatty acids catalyzed by inexpensive simple nickel (II) compounds.

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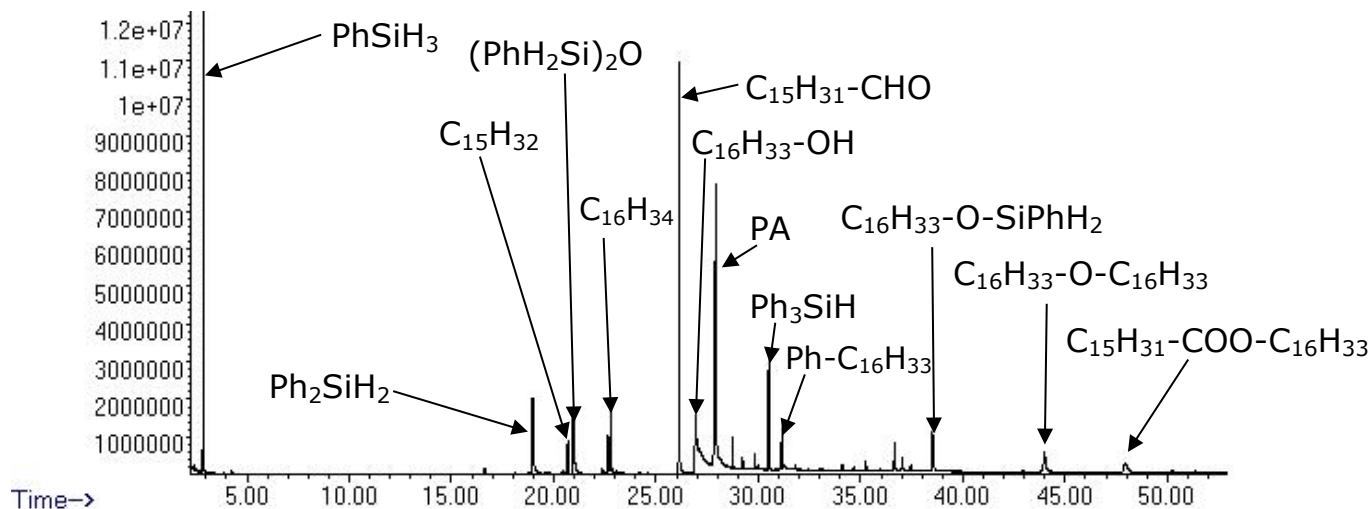


Figure S1: Typical GC for crude reaction mix before hydrolysis of the reduction of PA with 3 eq. PhSiH₃, 5 mol% of a Ni (II) compound as catalyst, neat conditions, at 90 °C for 16 hours.

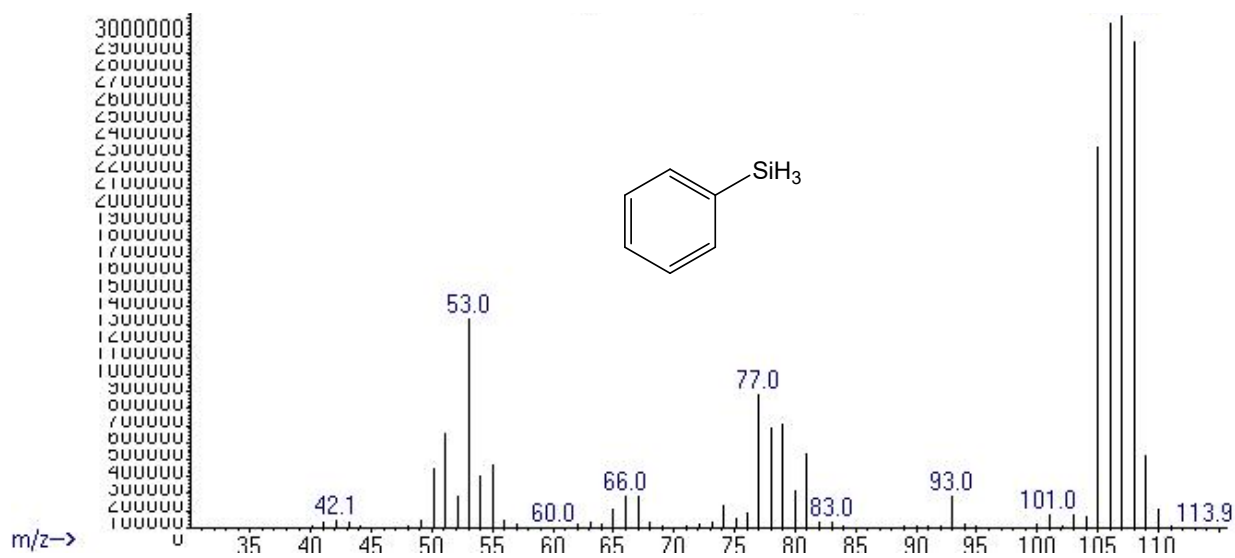


Figure S2: MS for phenylsilane.

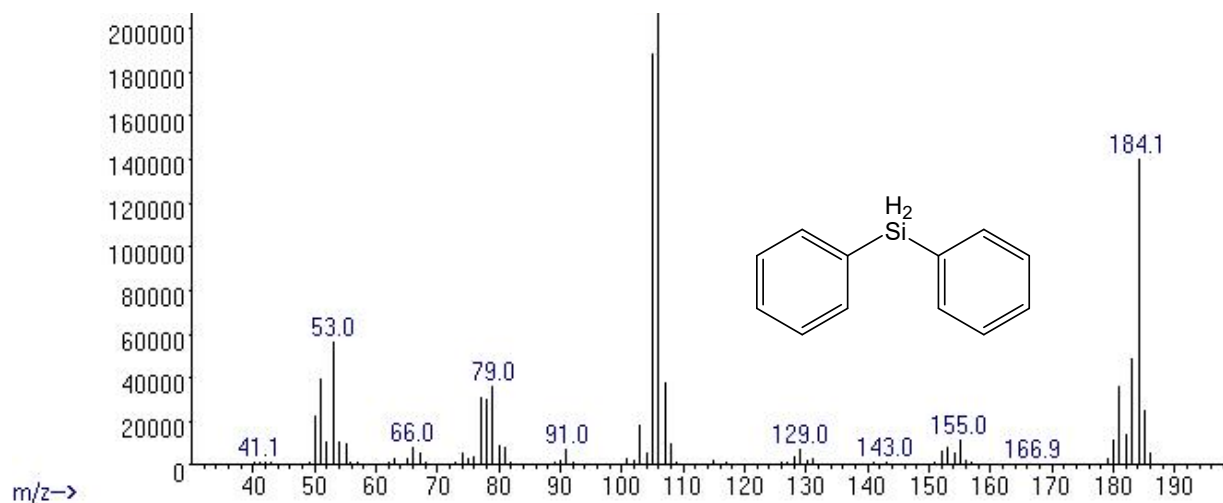


Figure S3: MS for diphenylsilane.

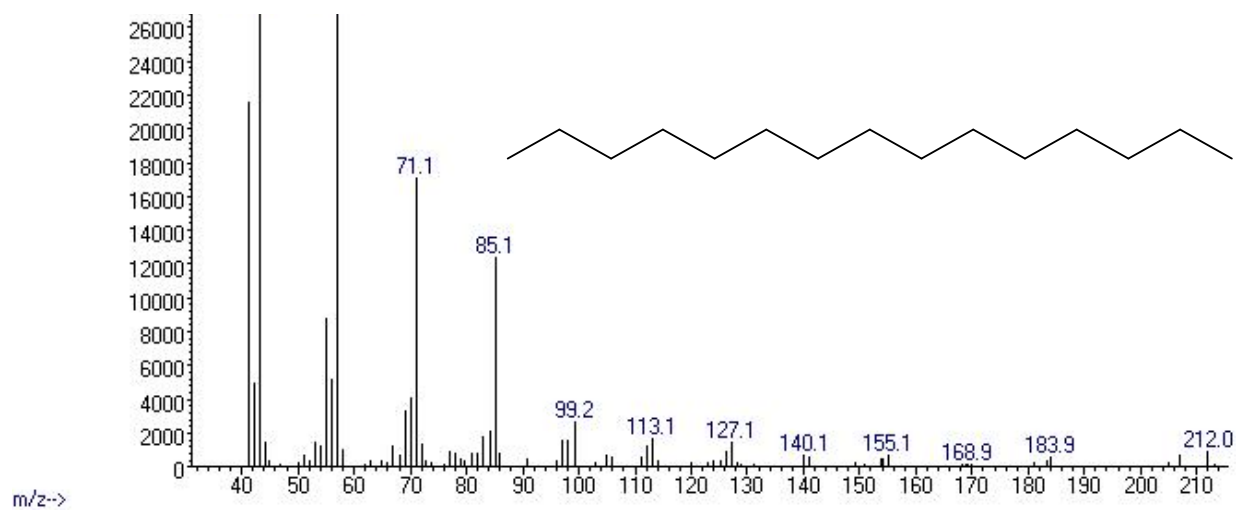


Figure S4: MS for n-pentadecane.

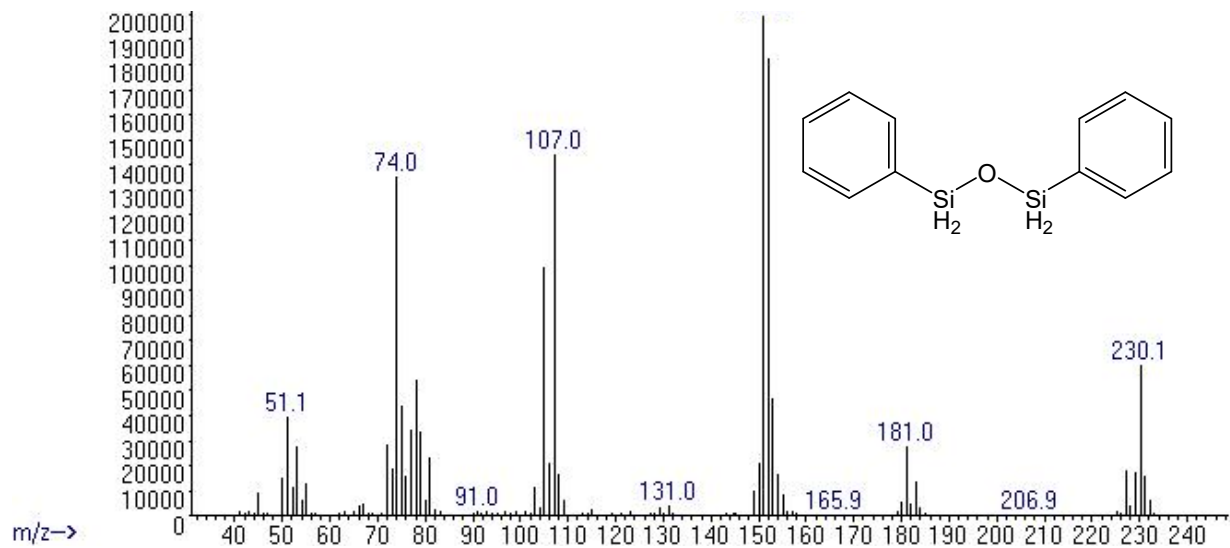


Figure S5: MS for 1,3-diphenyldisiloxane.

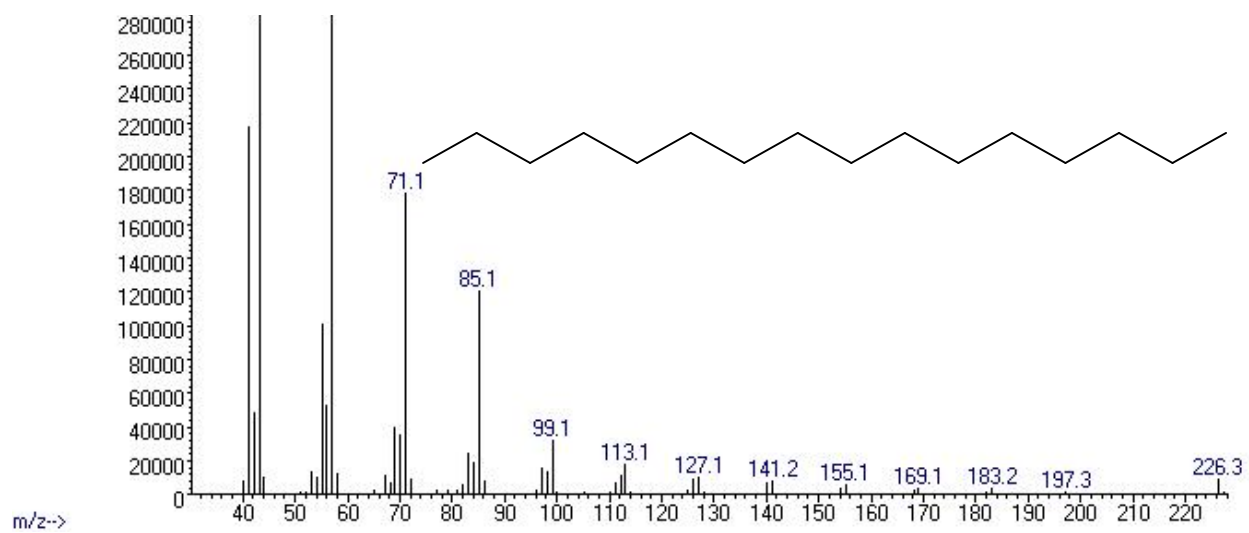


Figure S6: MS for n-hexadecane.

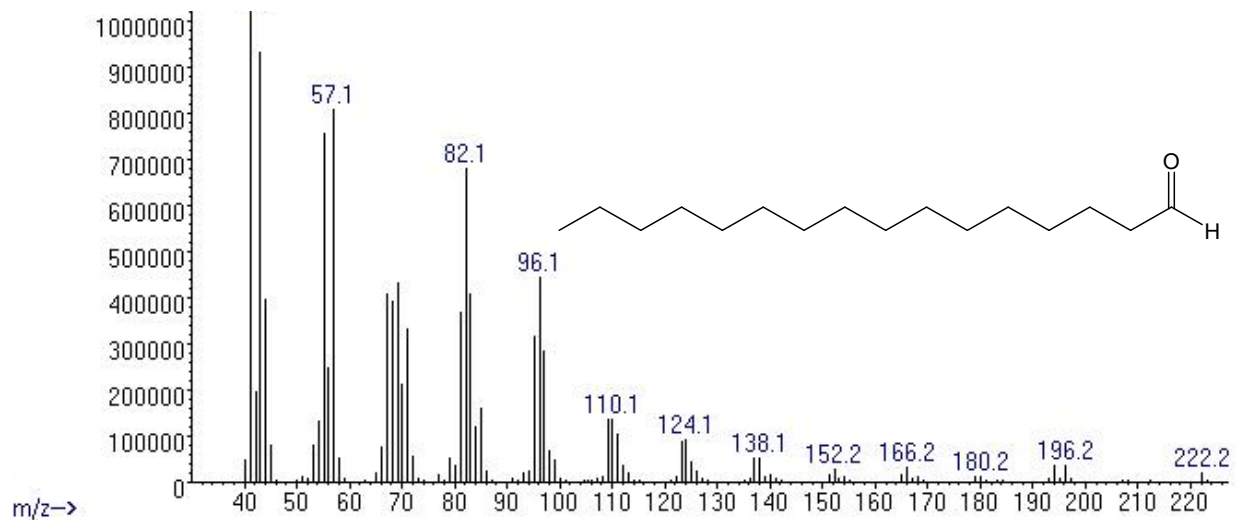


Figure S7: MS for hexadecanal.

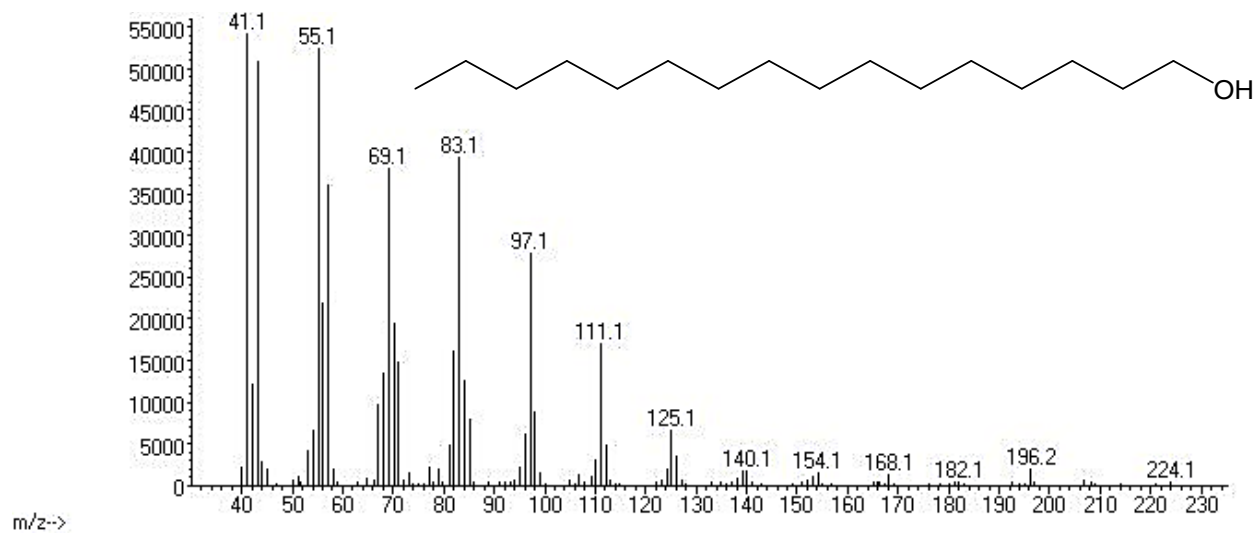


Figure S8: MS for 1-hexadecanol.

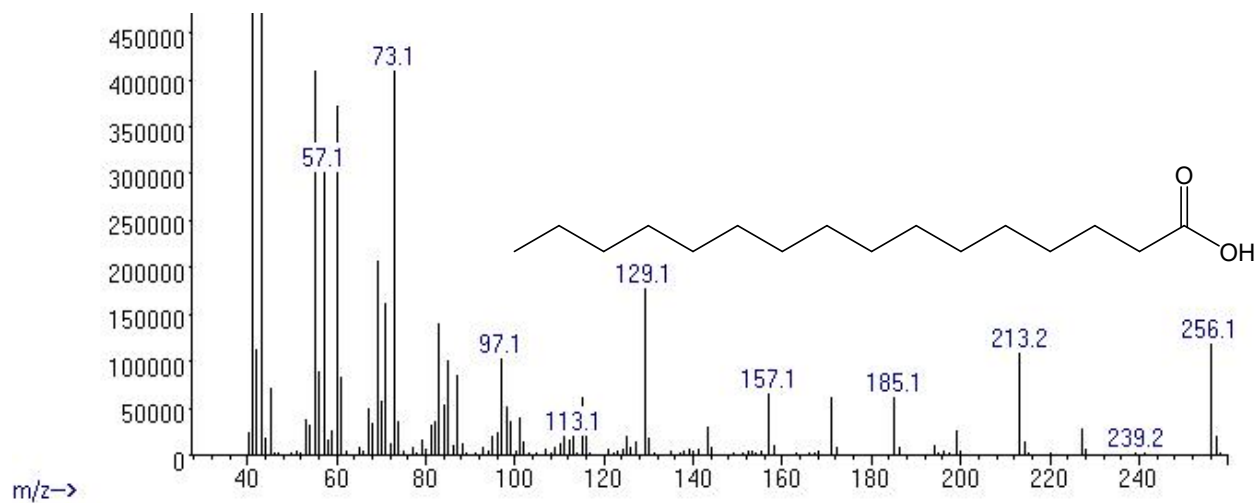


Figure S9: MS for PA.

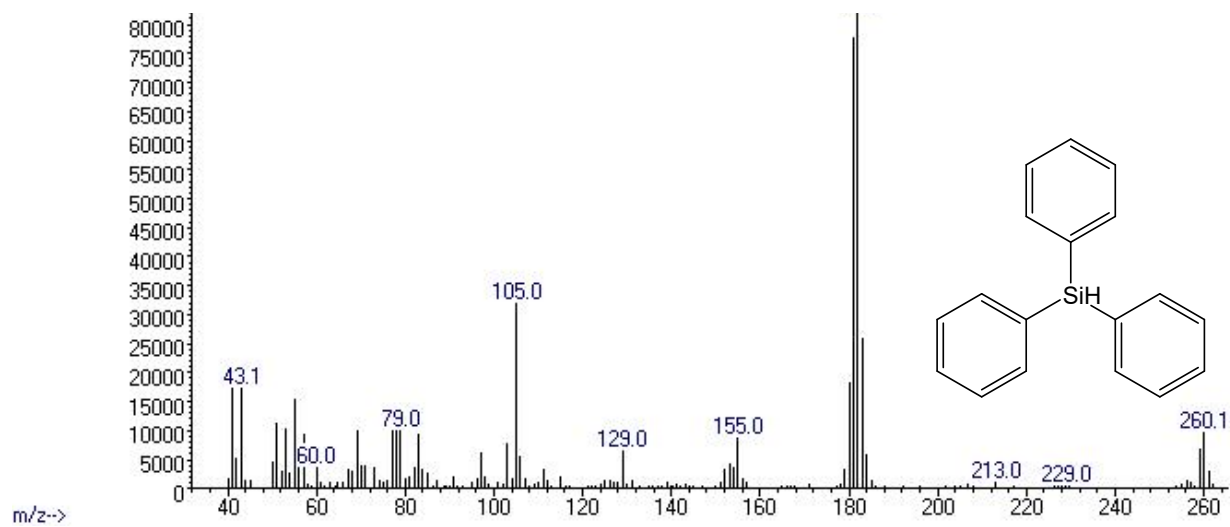


Figure S10: MS for triphenylsilane.

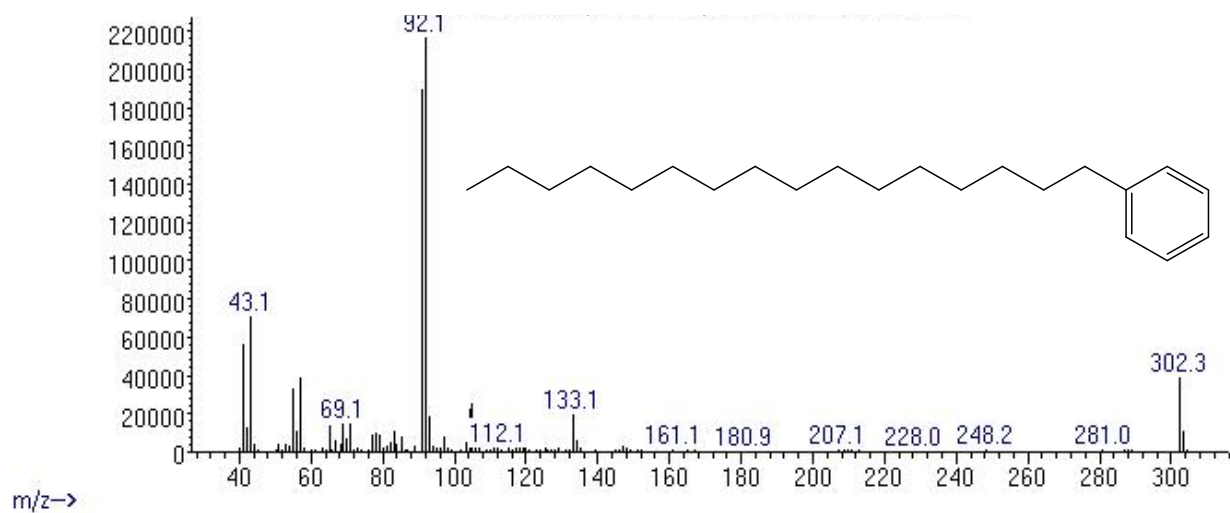


Figure S11: MS for 1-phenylhexadecane.

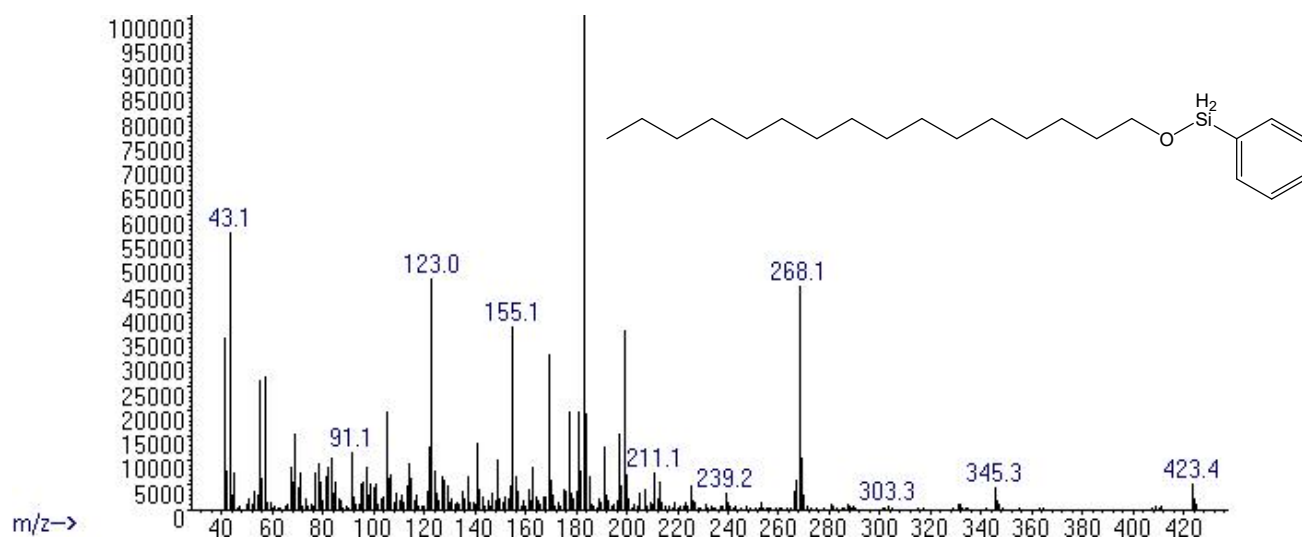


Figure S12: MS for 1-hexadecoxyphenylsilane.

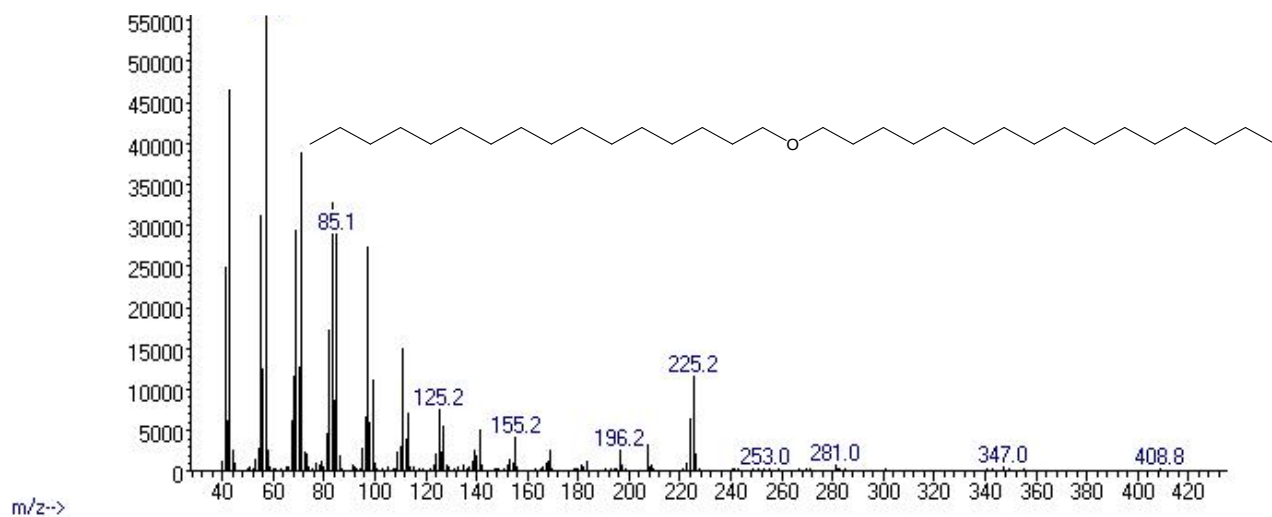


Figure S13: MS for dihexadecylether.

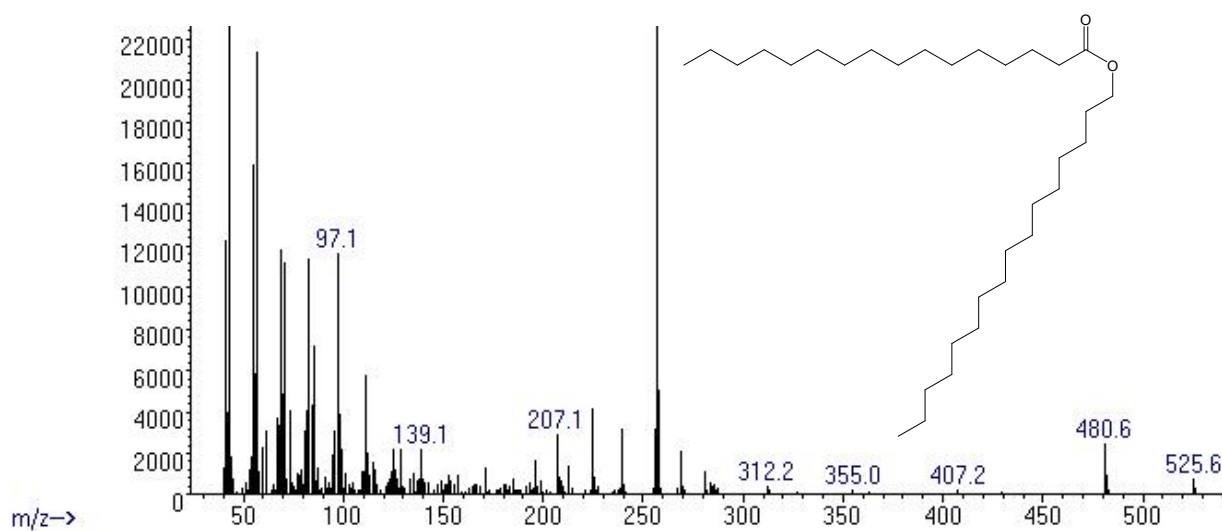


Figure S14: MS for cetyl palmitate.

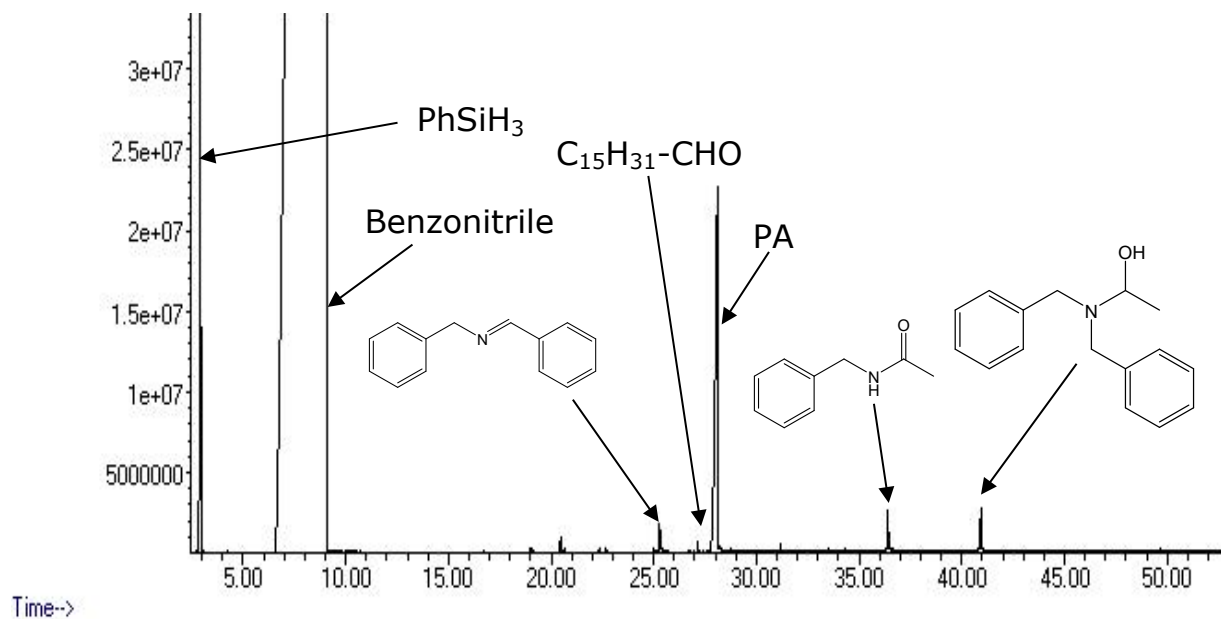


Figure S15: Chromatogram of the optimization reaction using benzonitrile as solvent, 4 eq. PhSiH_3 , 5 mol% $\text{Ni}(\text{AcO})_2$, at 90 °C for 16 hours.

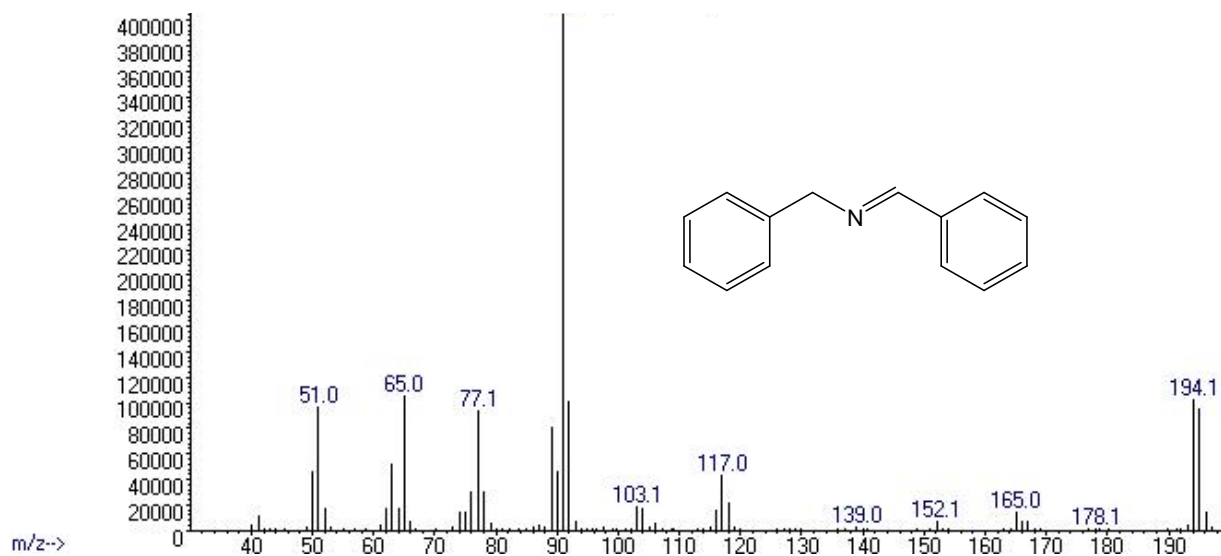


Figure S16: MS for N-benzylidenebenzylamine.

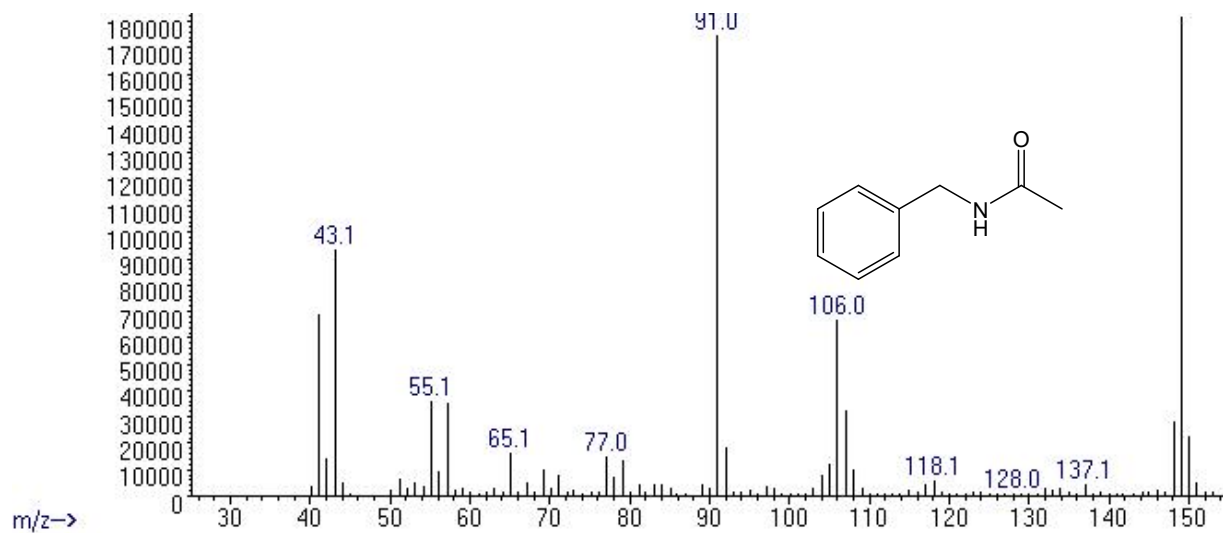


Figure S17: MS for N-benzylacetamide.

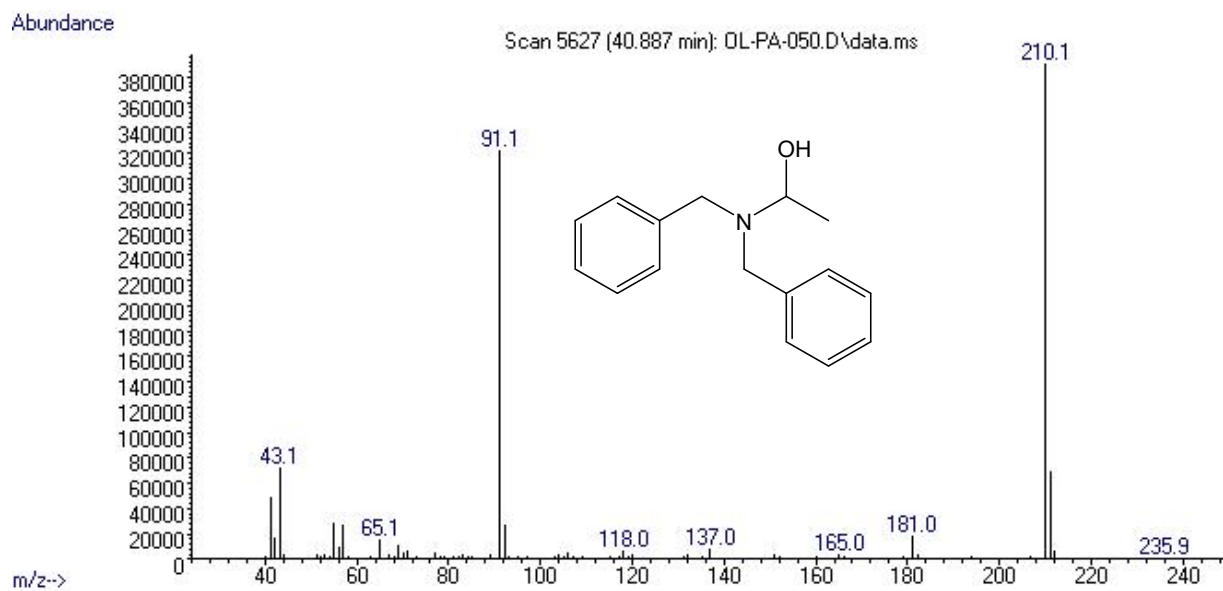


Figure S18: MS for N,N-dibenzyl-N-(1-hydroxyethyl)amine.

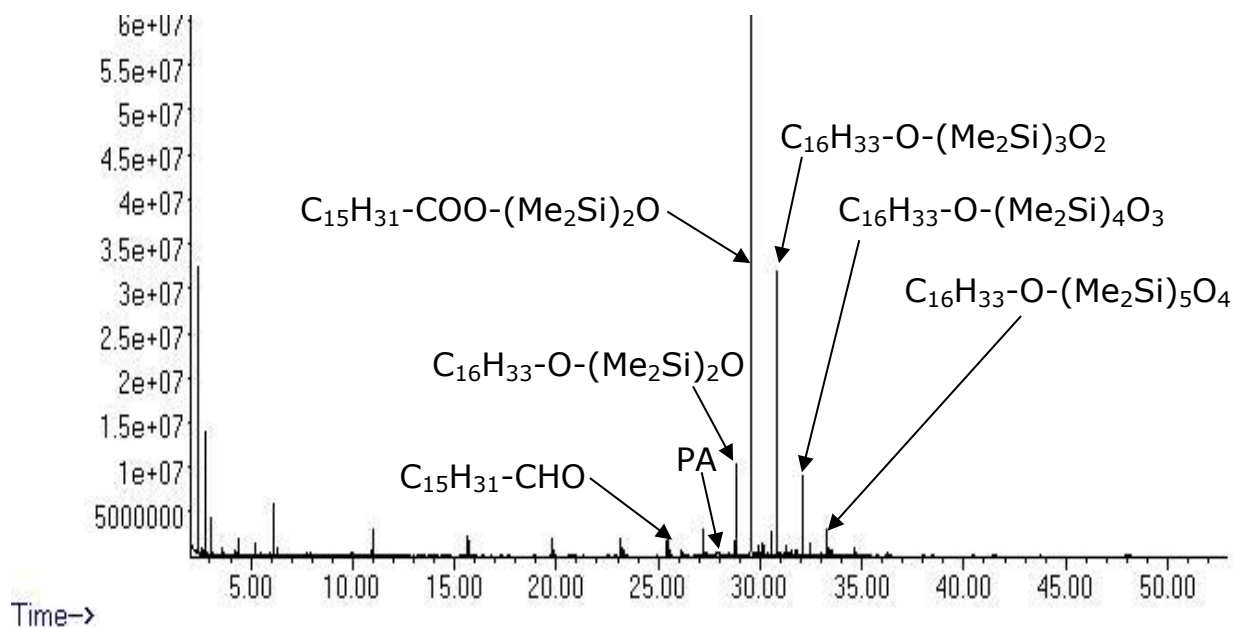


Figure S19: Chromatogram of the reduction of PA before hydrolysis with 4.5 eq. of TMDMS and 5 mol% of Ni(AcO)₂ · 4 H₂O under neat conditions at 90 °C for 16 hours.

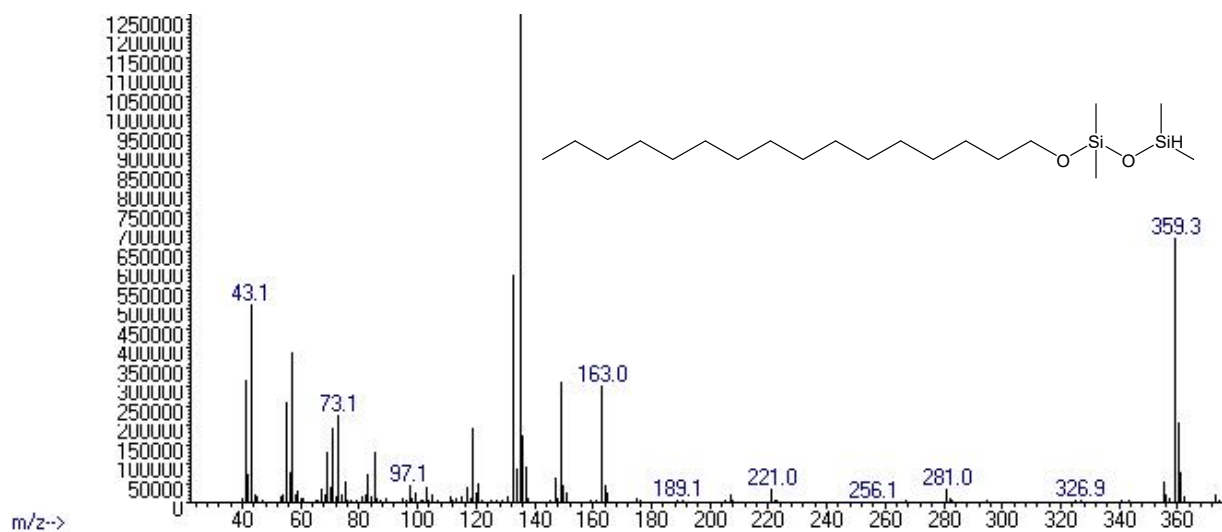


Figure S20: MS for 1-hexadecoxy-1,1,3,3-tetramethyldisiloxane.

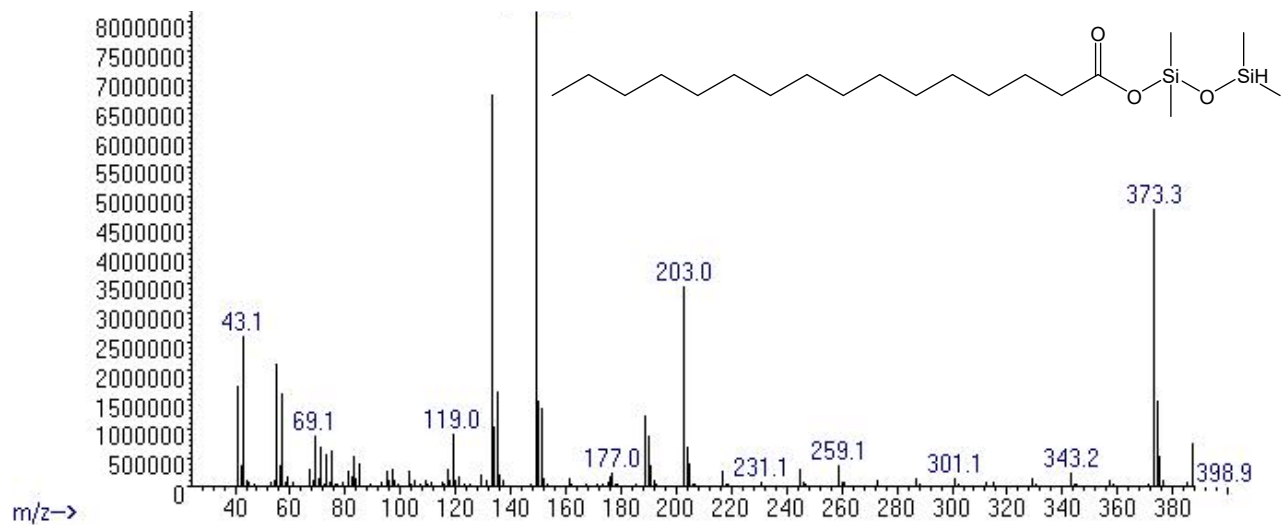


Figure S21: MS for 1,1,3,3-tetramethylsilyl palmitate.

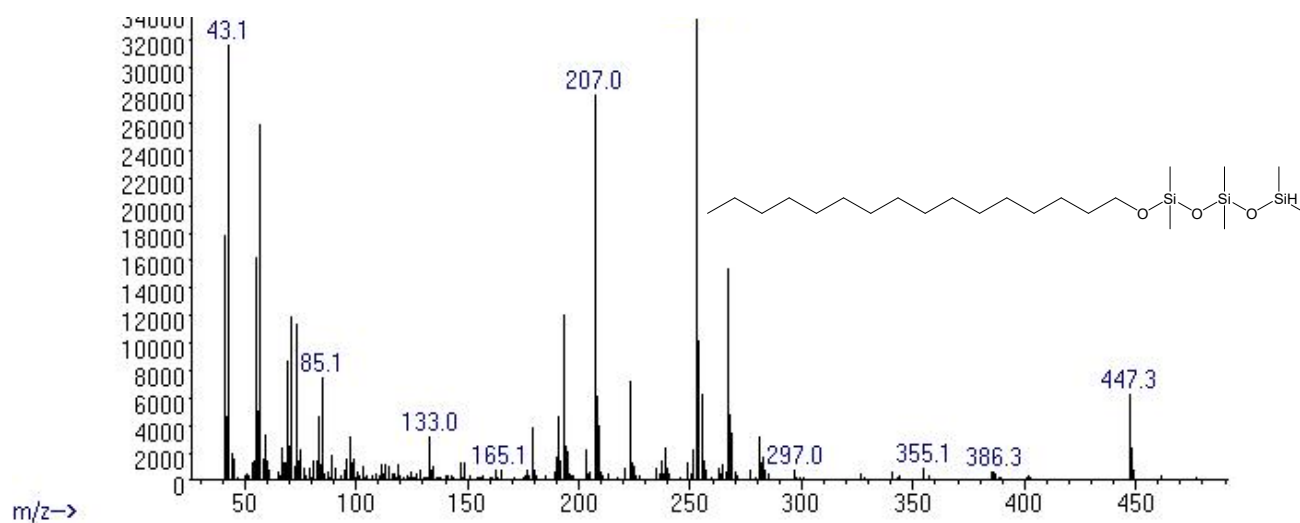


Figure S22: MS for 1-hexadecoxy-1,1,3,3,5,5-hexamethyltrisiloxane.

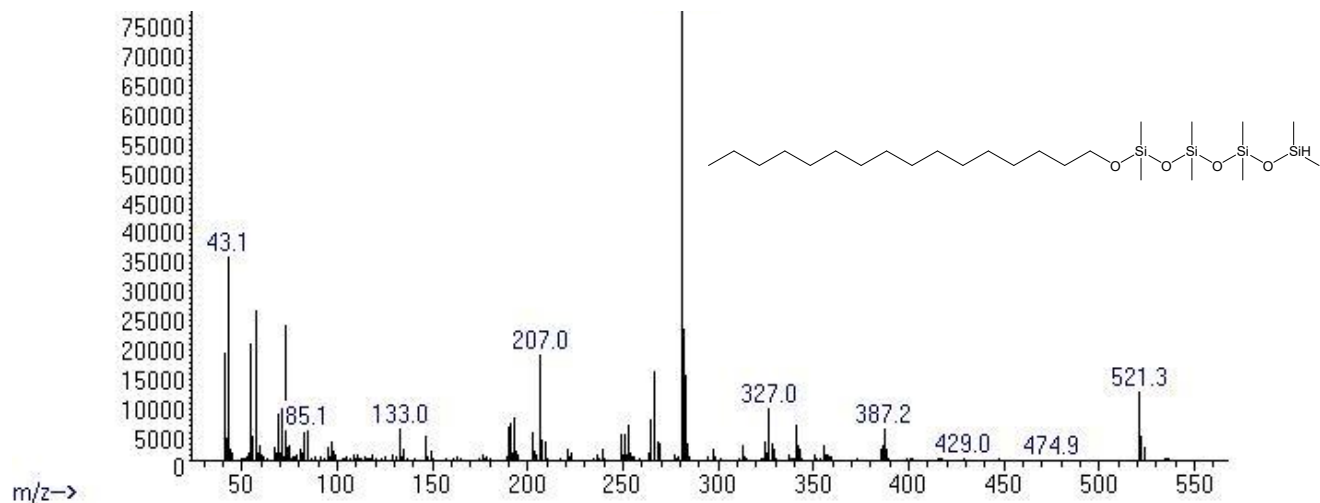


Figure S23: MS for 1-hexadecoxy-1,1,3,3,5,5,7,7-octamethyltetrasiloxane.

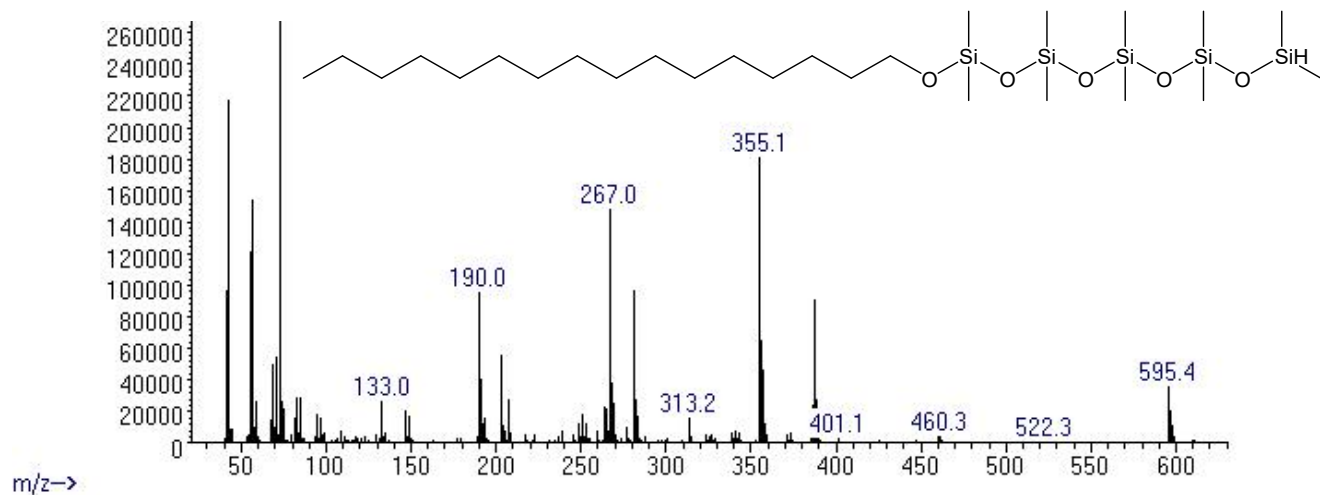


Figure S24: MS for 1-hexadecoxy-1,1,3,3,5,5,7,7,9,9-decamethylpentasiloxane.

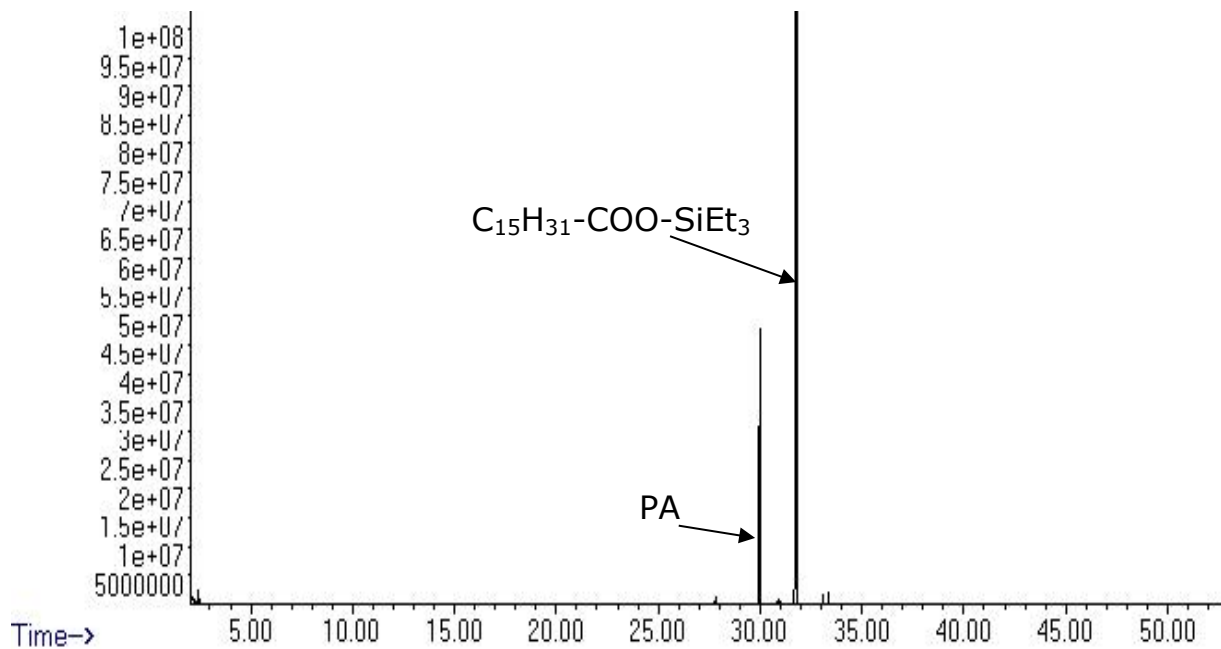


Figure S25: Chromatogram for the reaction of PA before hydrolysis with 3 eq. of Et₃SiH, 5 mol% Ni(AcO)₂ · 4 H₂O, neat conditions at 90 °C for 16 hours.

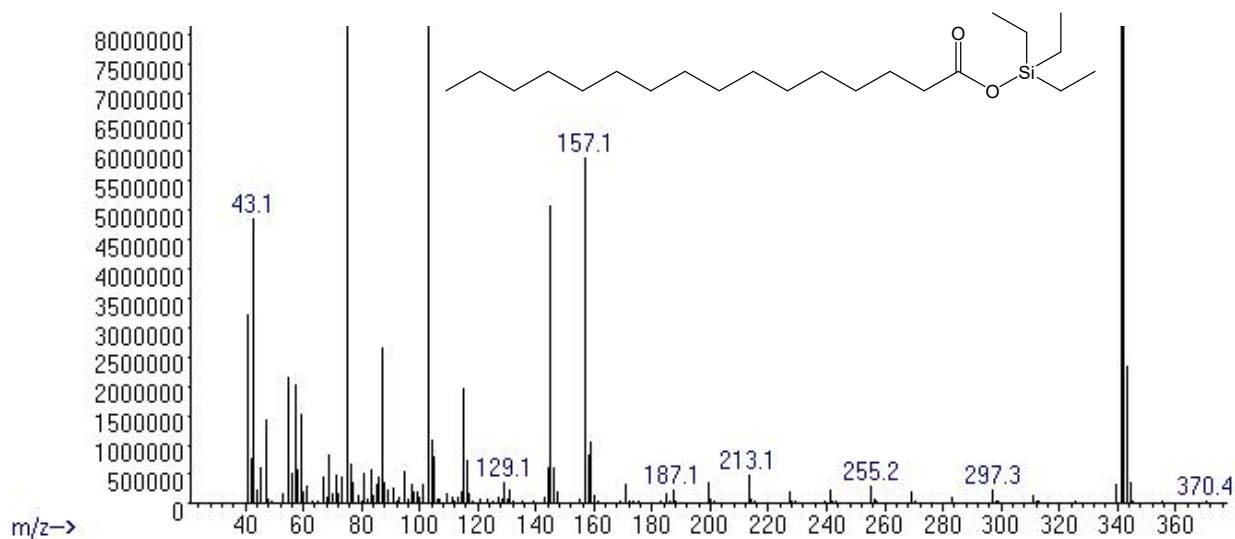


Figure S26: MS for triethylsilyl palmitate.

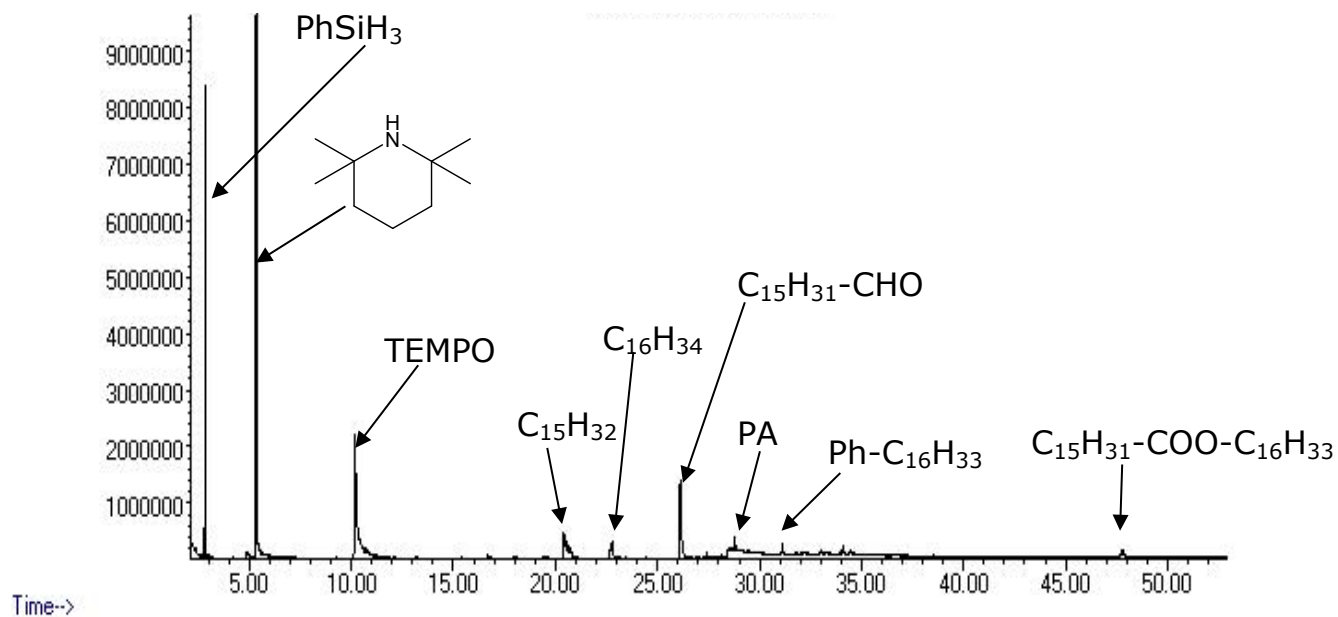


Figure S27: Chromatogram of the reduction of PA with 3 eq. of PhSiH₃ and 5 mol% Ni(AcO)₂ · 4 H₂O and TEMPO as radical trap, under neat conditions at 90 °C for 16 hours.

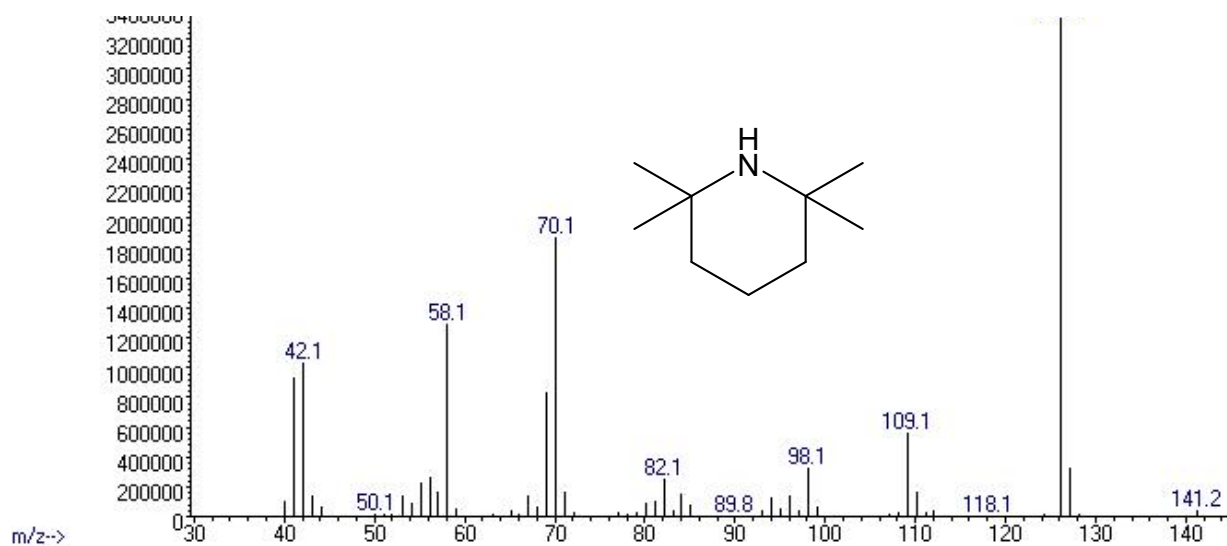


Figure S28: MS for 2,2,6,6-tetramethylpiperidine.

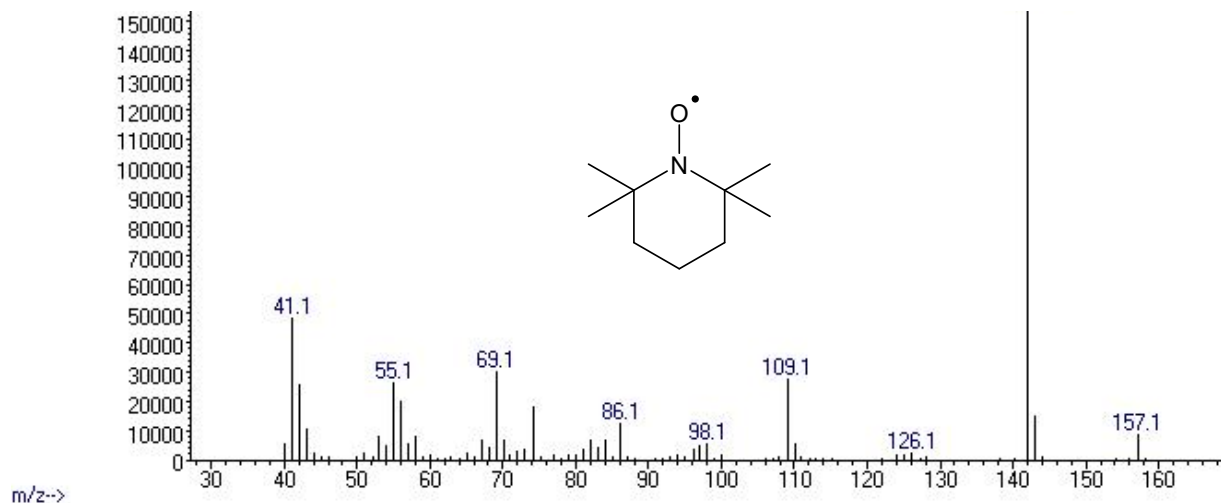


Figure S29: MS for 2,2,6,6-tetramethyl-1-piperidinyloxy (TEMPO).

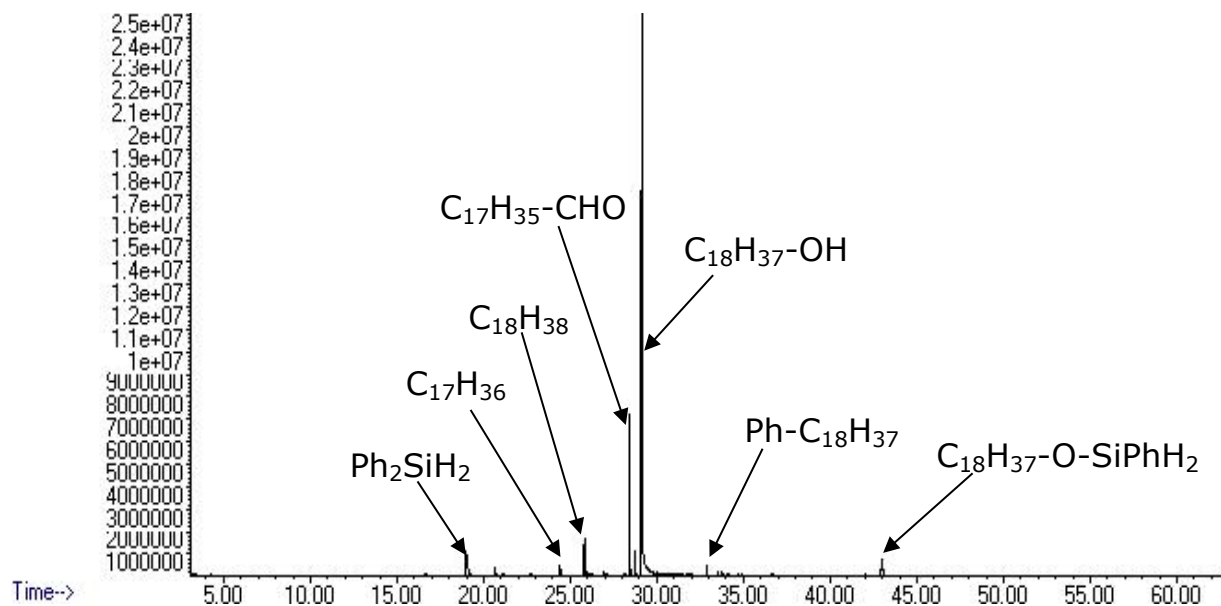


Figure S30: Chromatogram for crude reaction mix before hydrolysis of the reduction of SA with 3 eq. PhSiH₃, 5 mol% of a Ni(AcO)₂ · 4 H₂O as catalyst, neat conditions, at 90 °C for 16 hours.

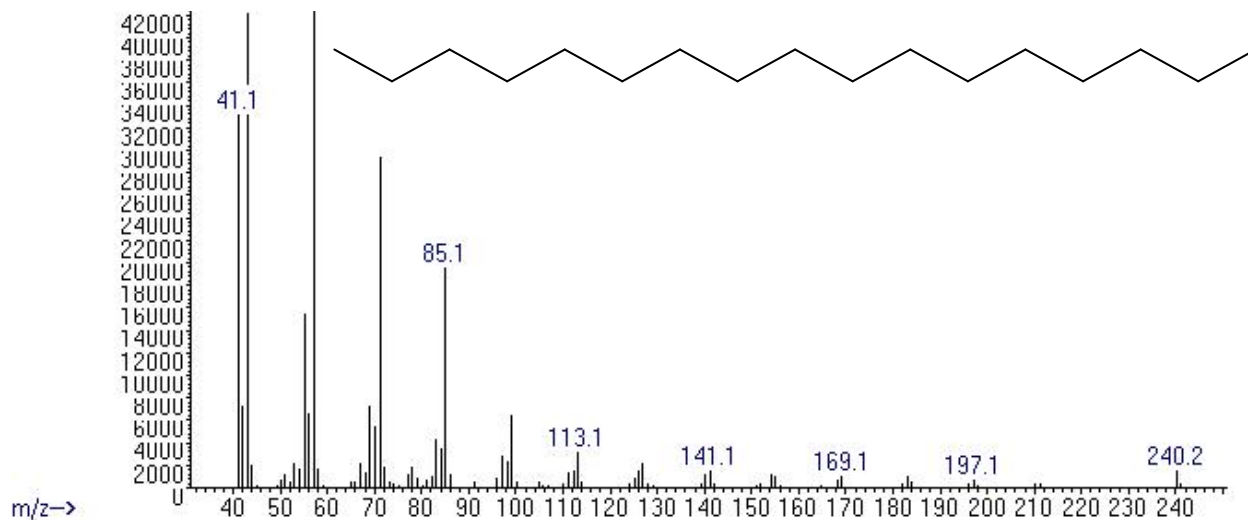


Figure S31: MS for n-heptadecane.

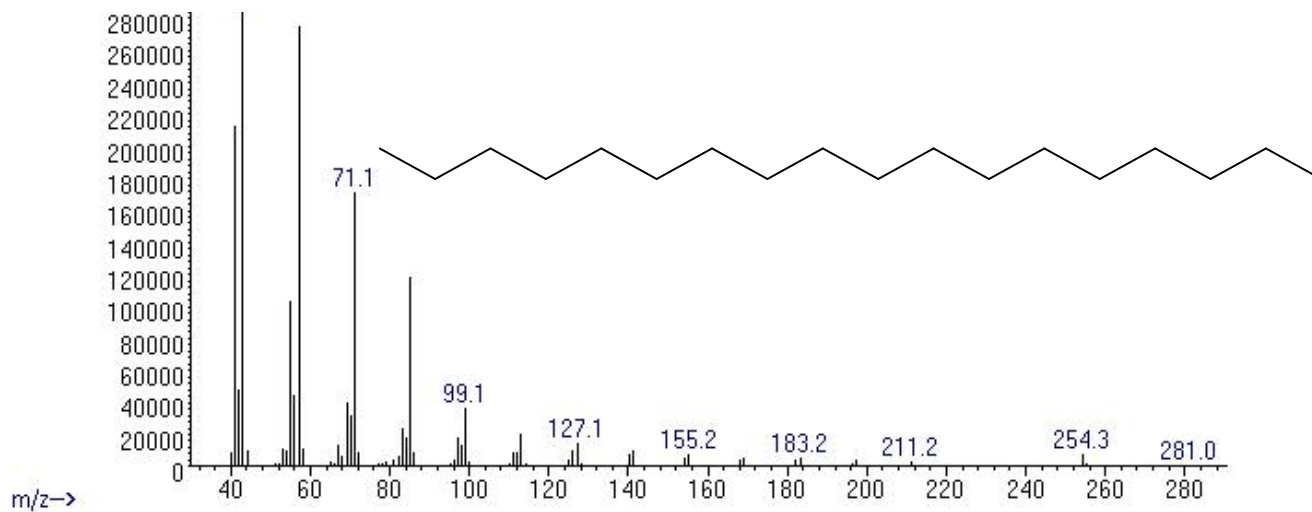


Figure S32: MS for n-octadecane.

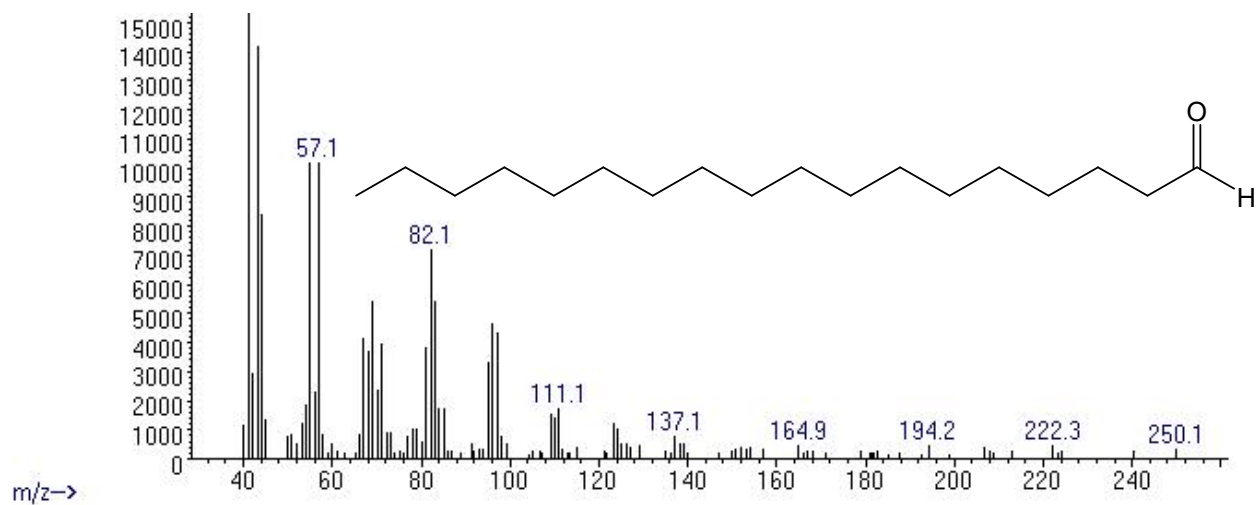


Figure S33: MS for octadecanal.

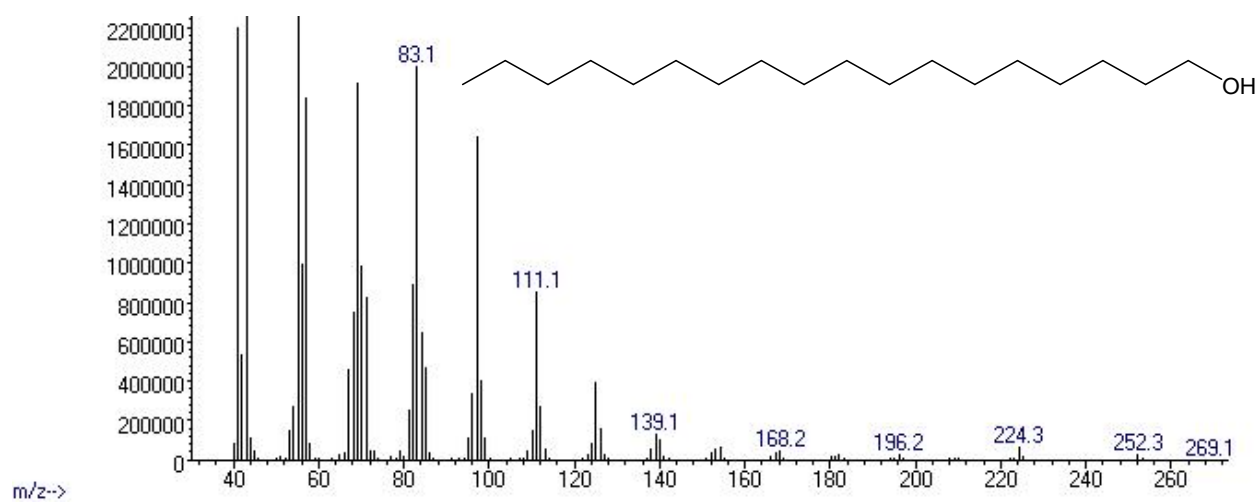


Figure S34: MS for 1-octadecanol.

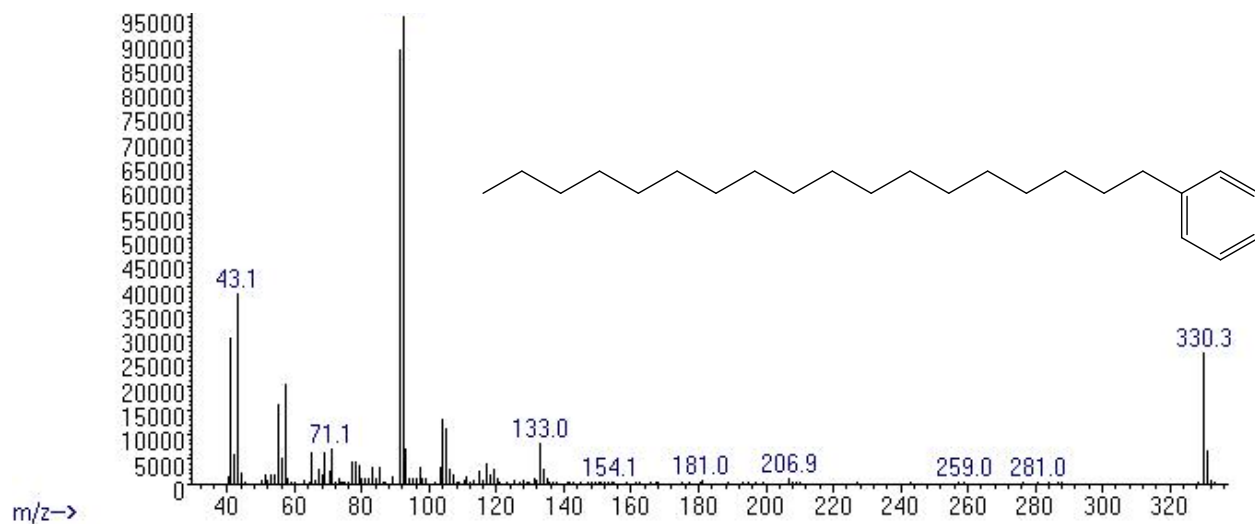


Figure S35: MS for 1-phenylhexadecane.

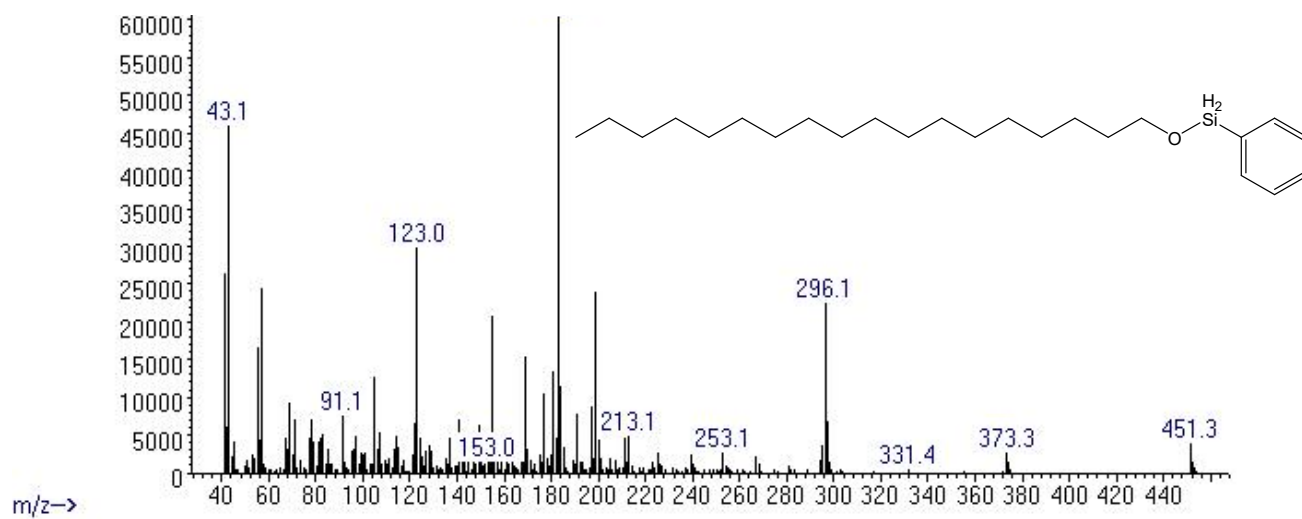


Figure S36: MS for 1-hexadecoxyphenylsilane.

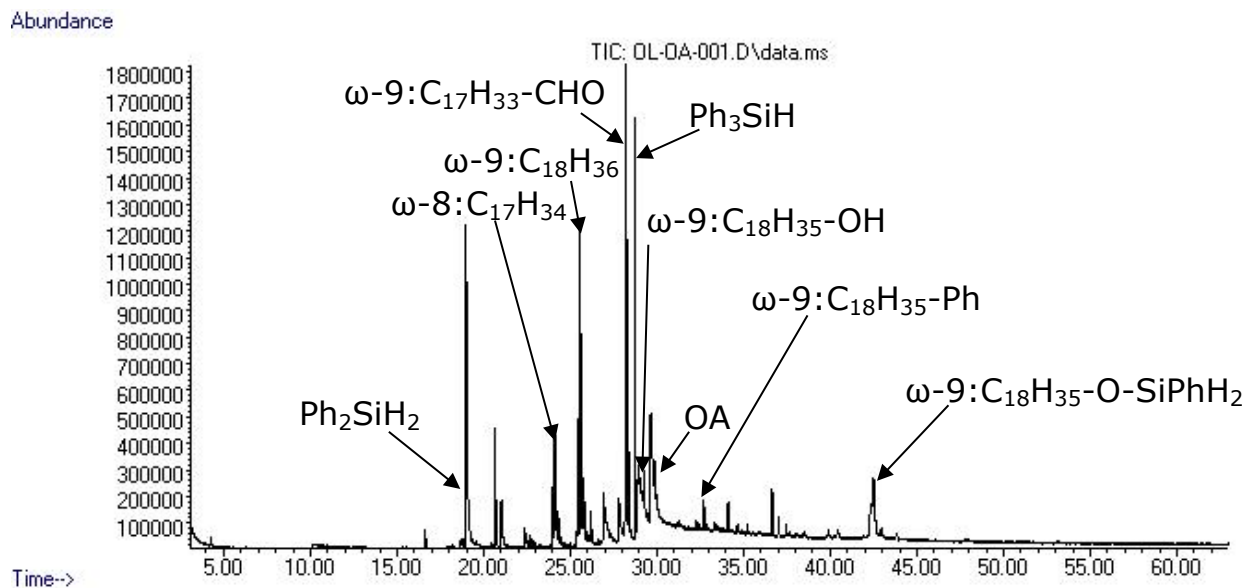


Figure S37: Chromatogram for crude reaction mix before hydrolysis of the reduction of OA with 3 eq. PhSiH_3 , 5 mol% of a $\text{Ni}(\text{AcO})_2 \cdot 4 \text{H}_2\text{O}$ as catalyst, neat conditions, at 90°C for 16 hours.

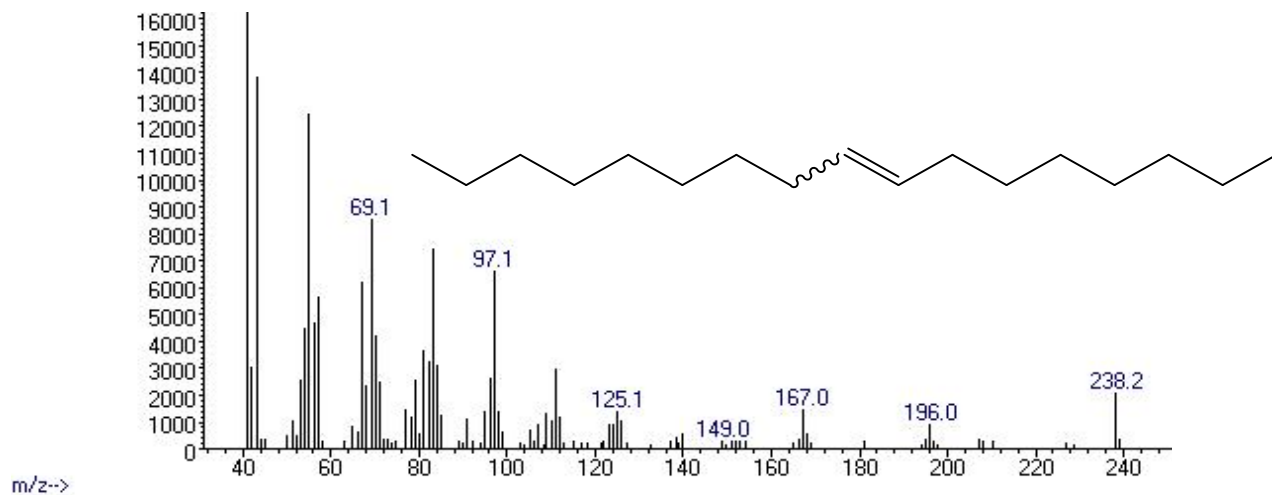


Figure S38: MS for (E/Z)-8-heptadecene.

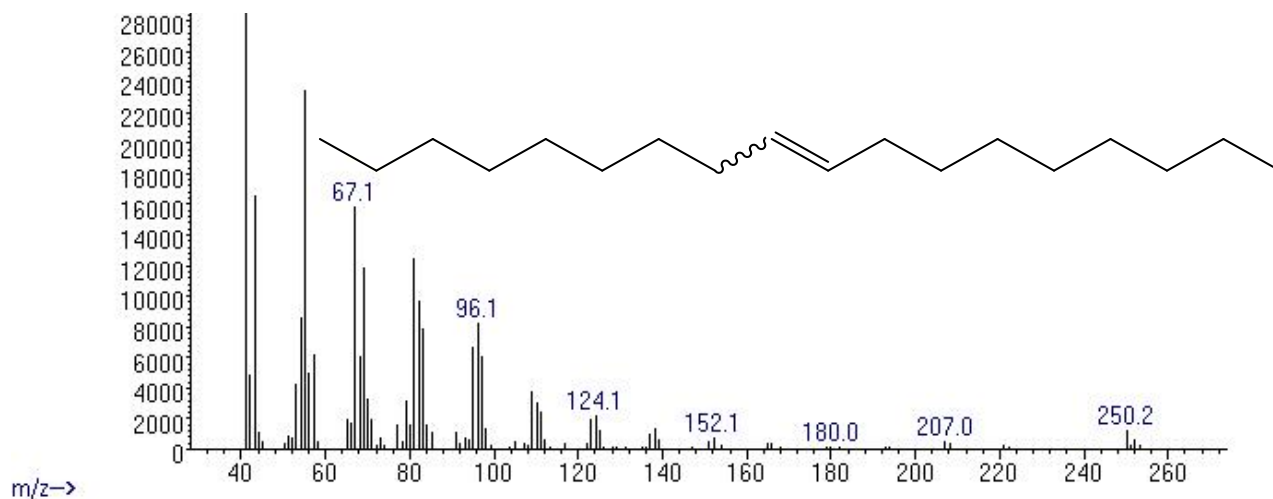


Figure S39: MS for (E/Z)-9-octadecene.

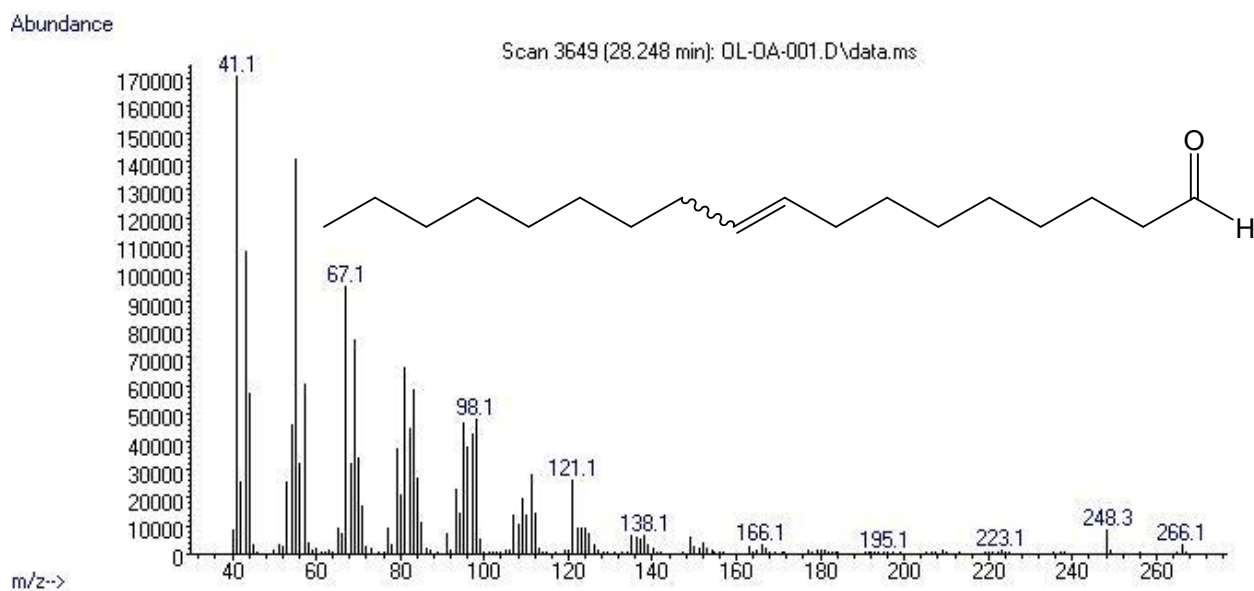


Figure S40: MS for (E/Z)-9-octadecenal.

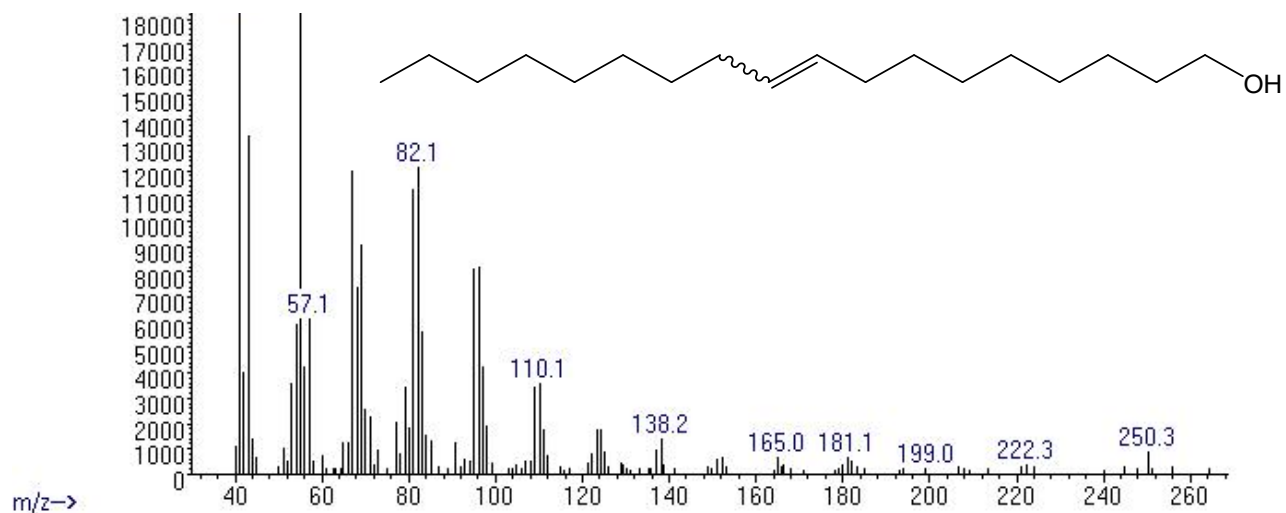


Figure S41: MS for (E/Z)-9-octadecen-1-ol.

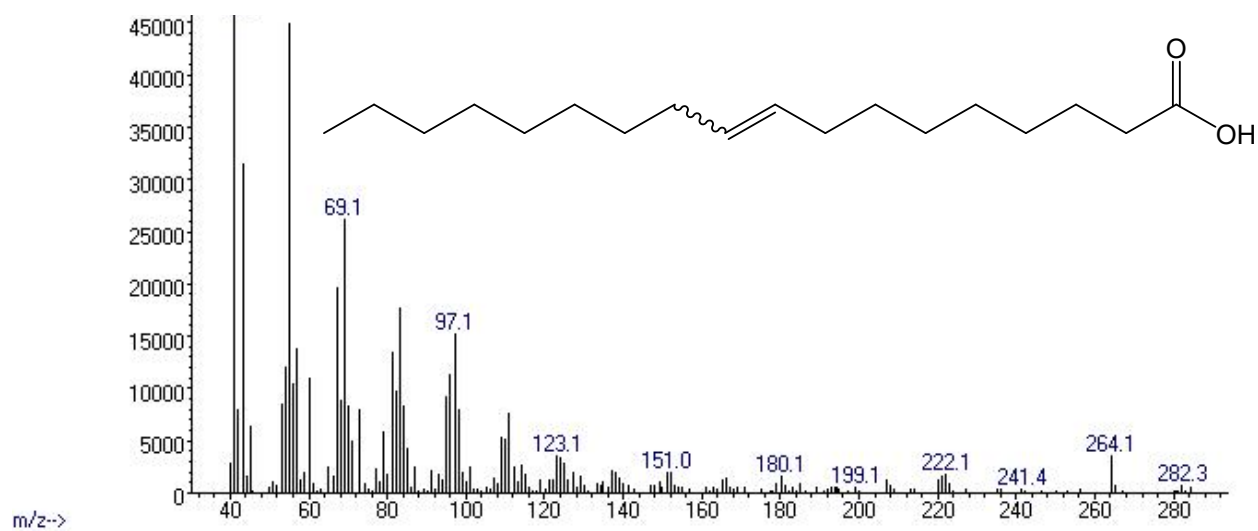


Figure S42: MS for (E/Z)-9-octadecenoic acid.

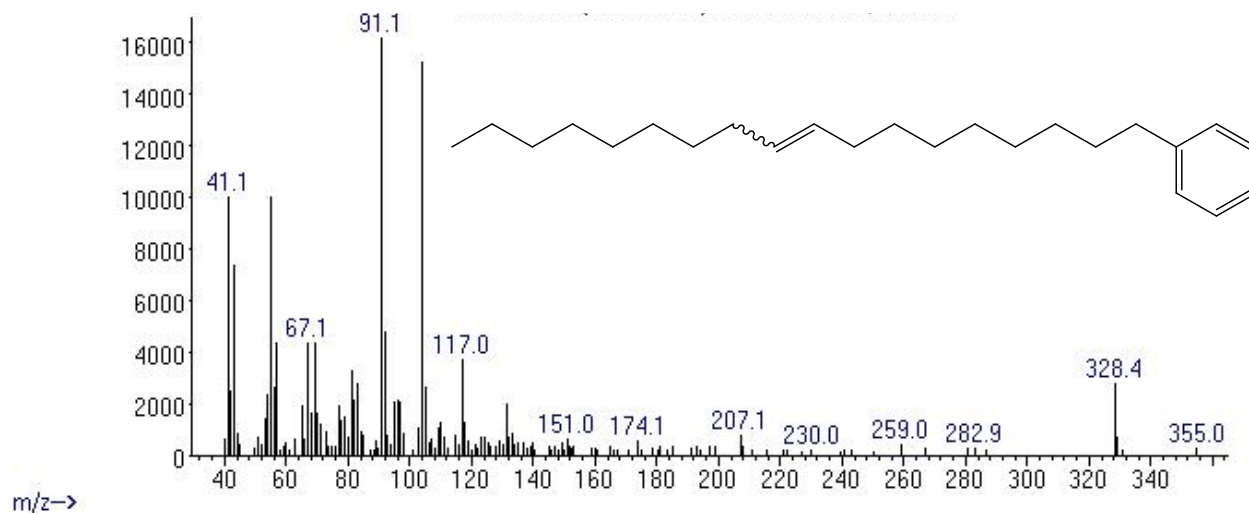


Figure S43: MS for 1-phenyl-(E/Z)-9-octadecene.

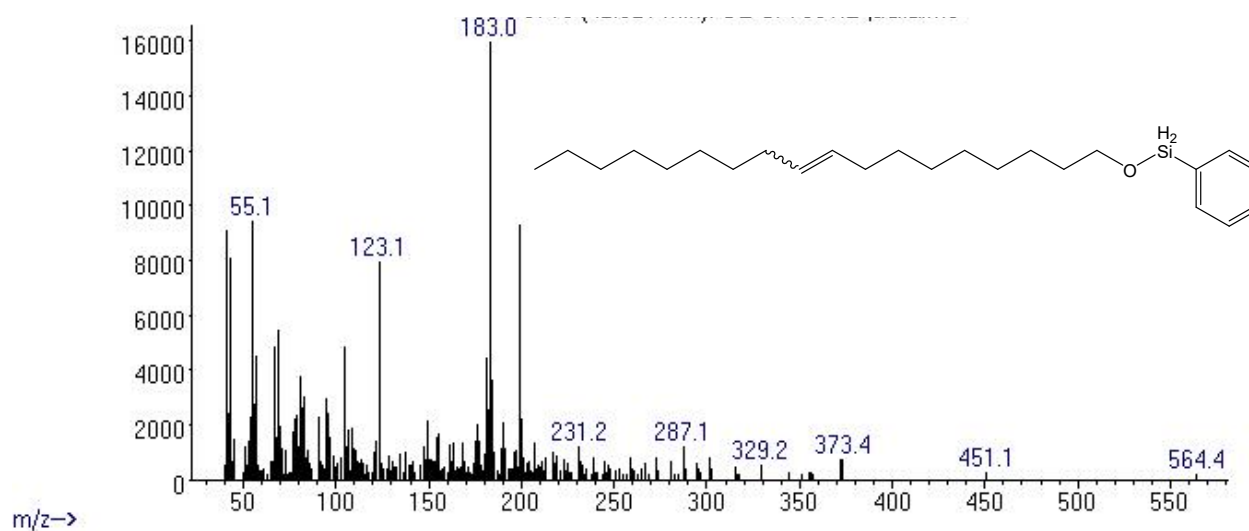


Figure S44: MS for (E/Z)-9-octadecenoxyphenylsilane.

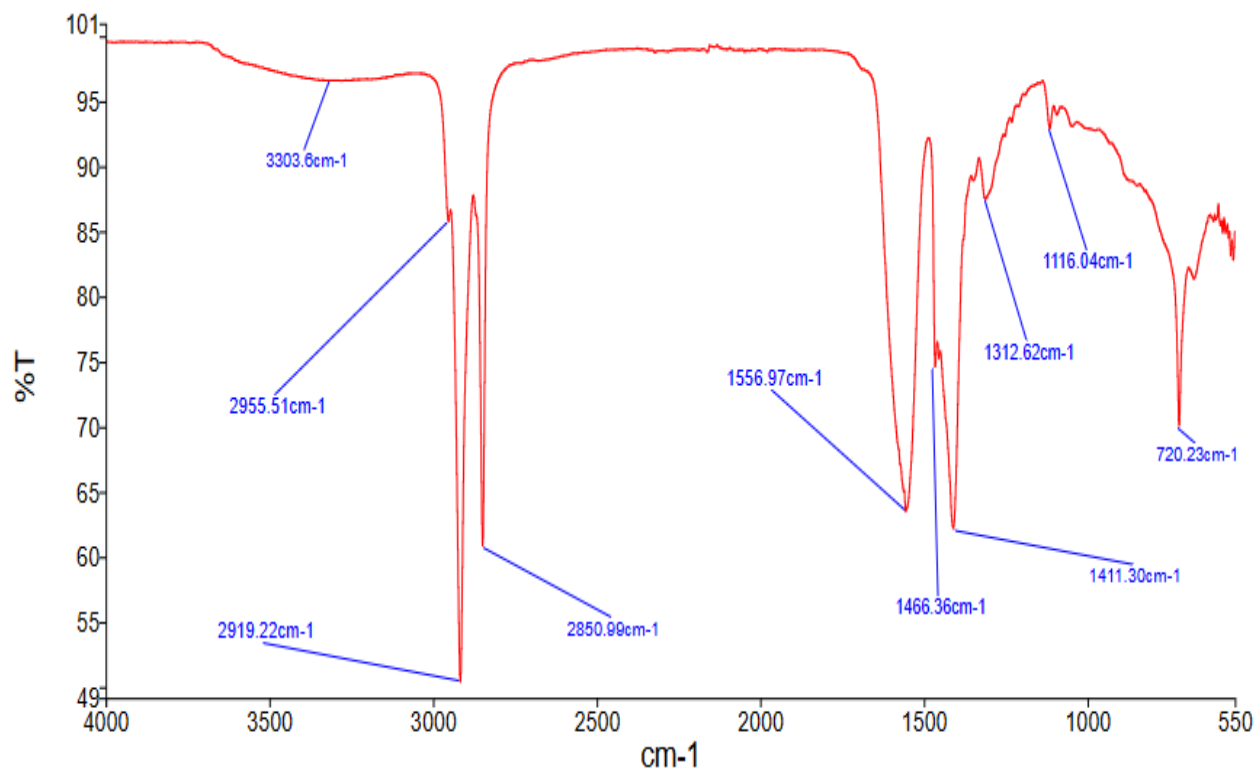


Figure S45: FTIR-ATR spectra of $[\text{Ni}(\text{C}_{15}\text{H}_{31}\text{COO})_2(\text{H}_2\text{O})_2]$.

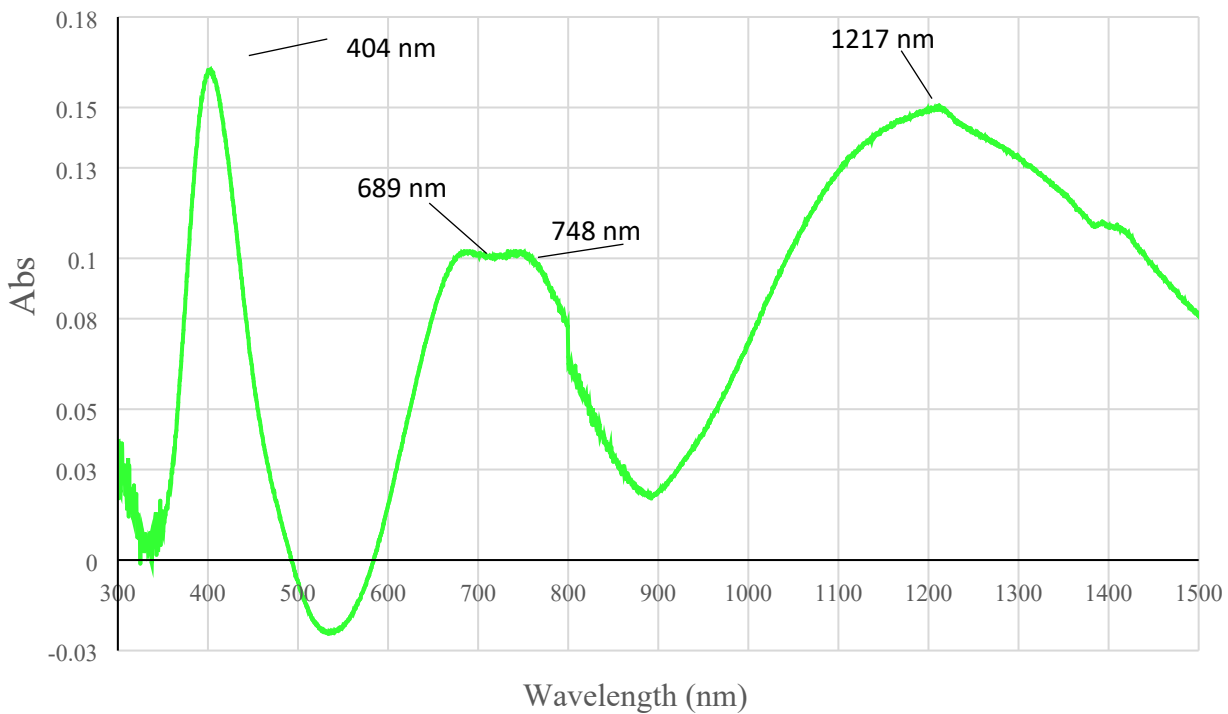


Figure S46: UV-Vis-NIR spectra of $[\text{Ni}(\text{C}_{15}\text{H}_{31}\text{COO})_2(\text{H}_2\text{O})_2]$.

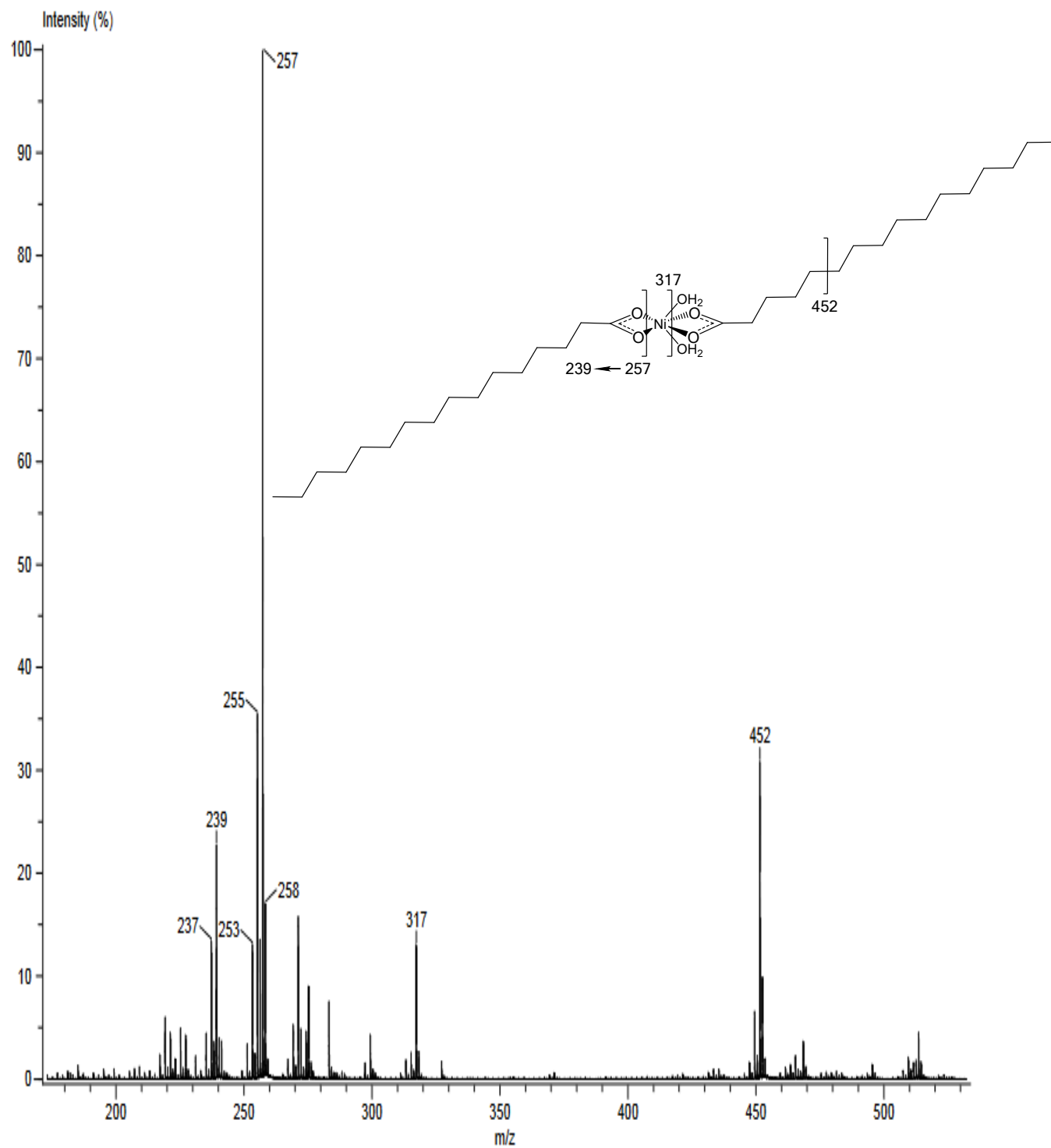


Figure S47: DART⁺-MS of the synthesized [Ni(C₁₅H₃₁COO)₂(H₂O)₂].

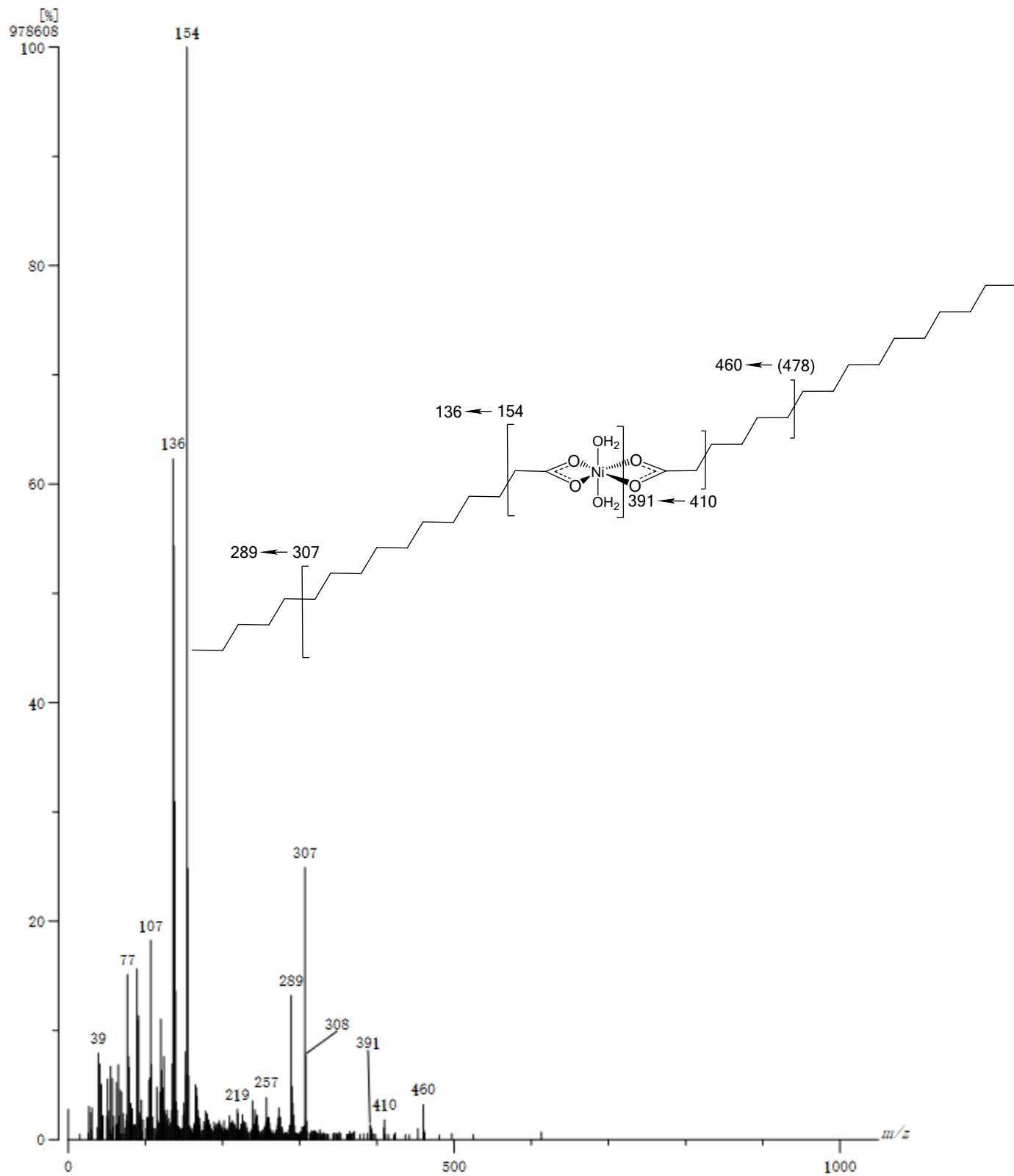


Figure S48: FAB⁺-MS for the synthesized $[\text{Ni}(\text{C}_{15}\text{H}_{31}\text{COO})_2(\text{H}_2\text{O})_2]$.