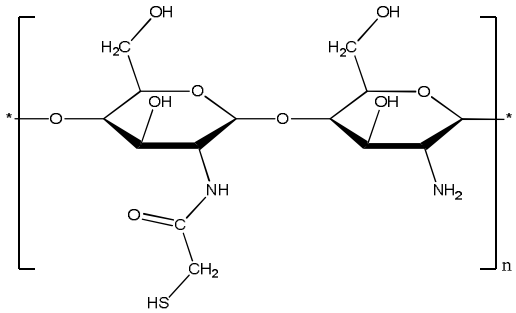
Sample Name:
Thiolated chitosan (*thiolated with thioglycolic acid*)

Sample #: **P16031-TCS**

Structure:

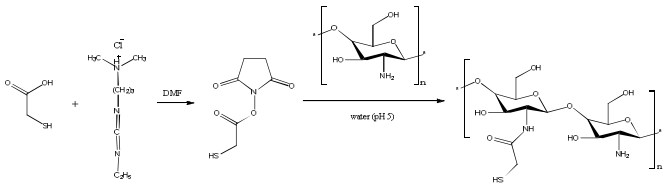


Composition:

Dynamic viscosity of native chitosan:	*Degree of thiolation:*
50–100 mPa·s, (0.5% in 0.5% Acetic Acid at 20°C)	42 mol%

Synthesis procedure:

The thiolated chitosan was prepared from chitosan using thioglycolic acid and EDAC•HCl. A scheme of reaction is shown below.



Purification:

The obtained thiolated chitosan was extensively dialyzed through cellulose membrane (MW cut-off, 5000) against water containing 5 mM HCl and 1% NaCl. The product was filtered off and lyophilized (freeze-dried).

The recommended storage temperature: around 4°C.

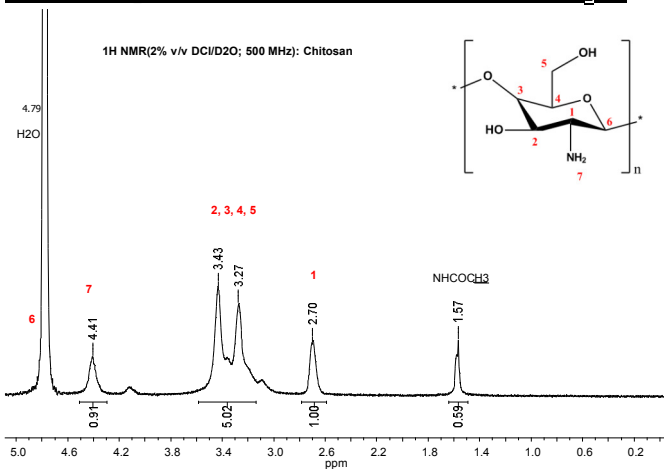
Characterization:

The product was analyzed by proton NMR and FT-IR spectroscopies. The degree of -SH functionalization was calculated from elemental analysis data.

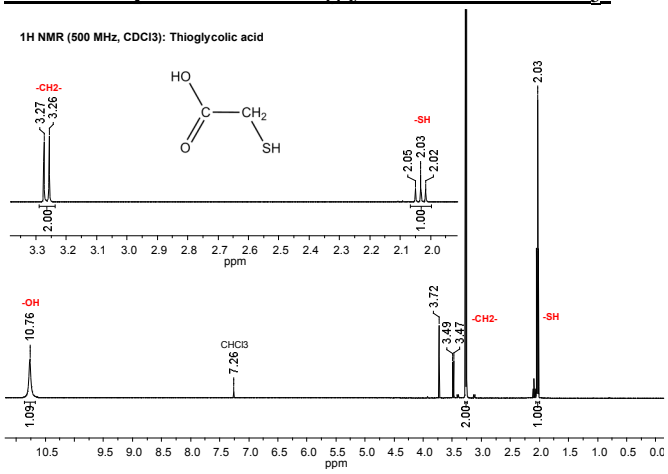
Solubility:

The polymer is soluble in water and aqueous hydrochloric acid solution, and has a limited solubility in DMSO.

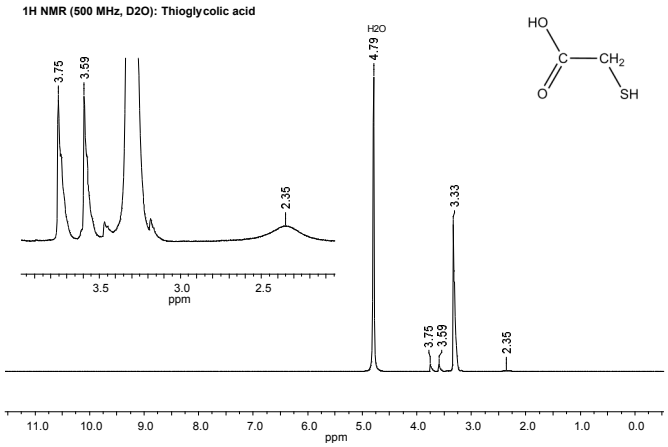
^{1}H NMR spectrum of native chitosan in DCl/D_2O:



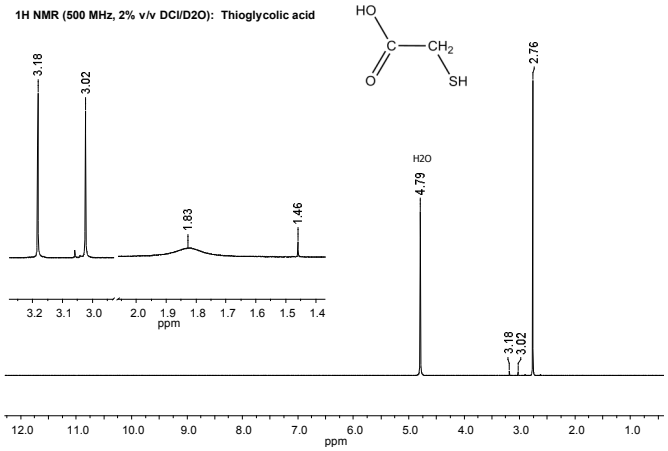
^{1}H NMR spectrum of thioglycolic acid in $CDCl_3$:



^{1}H NMR spectrum of thioglycolic acid in D_2O:



^{1}H NMR spectrum of thioglycolic acid in DCl/D_2O:

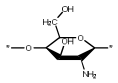


Elemental analysis of native chitosan :

Identification de l'échantillon:	CHITOSAN
Formule moléculaire:	C6 H11 N O4
Méthode utilisée:	160531E

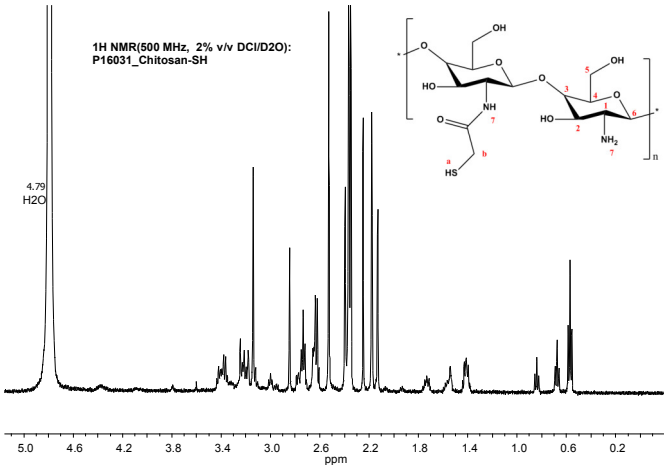
Sample Name	% Nitrogen	% Carbon	% Hydrogen
POL1-1	7,41	41,14	6,88
POL1-2	7,31	41,12	6,88

	% Nitrogen	% Carbon	% Hydrogen
Moyenne	7,36	41,13	6,88
Théorie:	8,70	44,70	6,90



Chemical Formula: $C_6H_{11}NO_4^{2+}$
Elemental Analysis: C, 44.72; H, 6.88; N, 8.69; O, 39.71

^{1}H NMR spectrum of P16031 in DCl/D_2O:

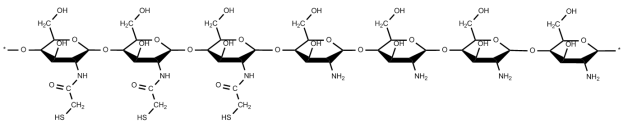


Elemental analysis of P16031 product:

Identification de l'échantillon:	P16031
Formule moléculaire:	(C8 H13 N O5 S)n
Méthode utilisée:	160611E

Sample Name	% Nitrogen	% Carbon	% Hydrogen	% Sulphur
POL8-1	8.29	35.43	5.97	6.80
POL8-2	9.19	35.72	6.11	7.24

	% Nitrogen	% Carbon	% Hydrogen	% Sulphur
Moyenne	8.29 - 9.19	35.57	6.04	7.02
Théorie:	5.95	40.84	5.57	13.63



Chemical Formula: $C_{48}H_{83}N_7O_{31}S_3^{2+}$
Elemental Analysis: C, 42.69; H, 6.20; N, 7.26; O, 36.73; S, 7.12