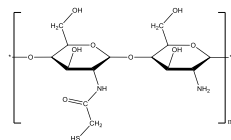


Sample Name: Thiolated chitosan
(thiolated with thioglycolic acid)

Sample #: P60754-TCS

Structure:

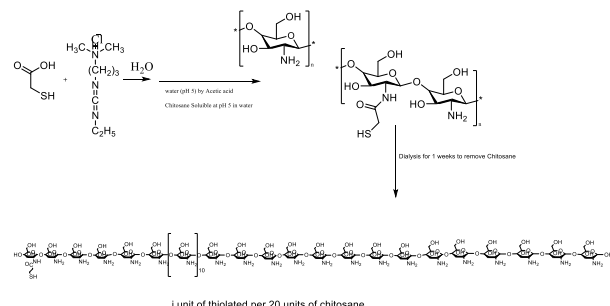


Composition:

Dynamic viscosity of native chitosan:	Degree of thiolation:
50–100 mPa·s, (0.5% in 0.5% Acetic Acid at 20°C)	2 mol%

Synthesis procedure:

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



i unit of thiolated per 20 units of chitosane

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.

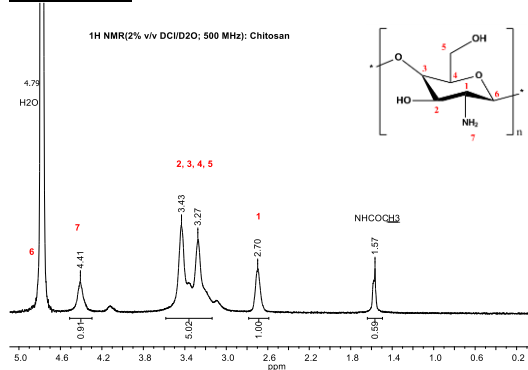
Characterization:

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

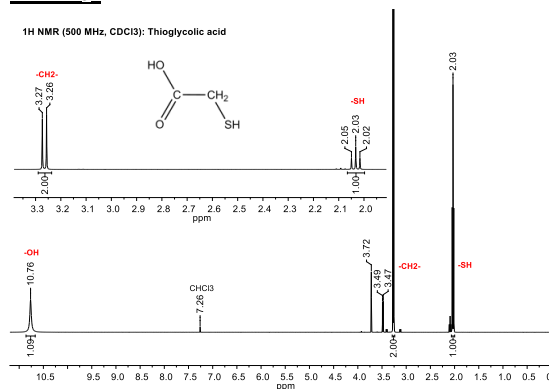
Solubility:

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

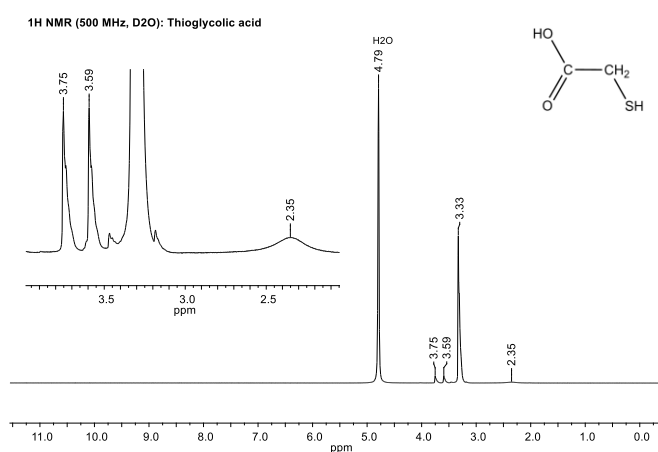
¹H NMR spectrum of native chitosan in DCI/D₂O:



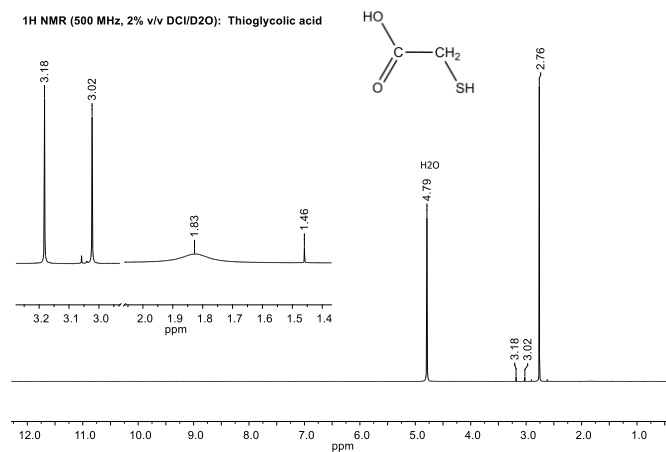
¹H NMR spectrum of thioglycolic acid in CDCl₃:



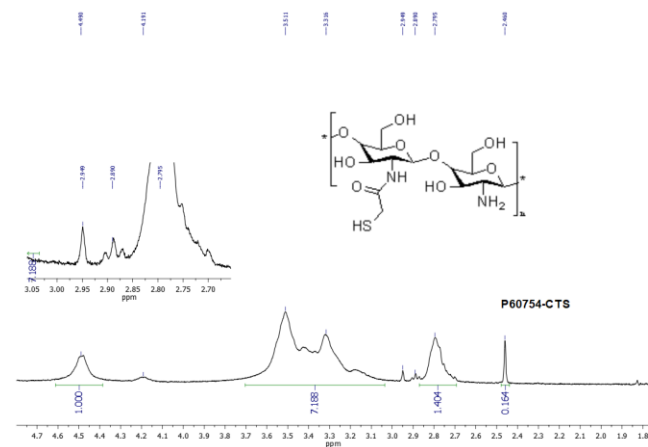
¹H NMR spectrum of thioglycolic acid in D₂O:



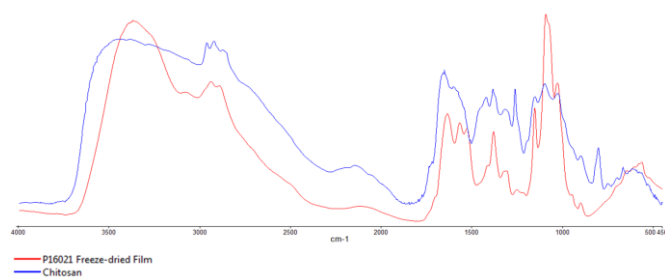
¹H NMR spectrum of thioglycolic acid in DCI/D₂O:



¹H NMR spectrum of P60754 product in D₂O/DCI:

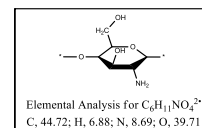


FT-IR absorption spectra of native chitosan (blue curve) and thiolated chitosan (red curve):



Elemental analyses of native chitosan and P60754:

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

Sample: P60754
 Lab ID: 2022-Q-4788

Received: 2022-07-15

Analysis	Method	Result	Basis	Sample Amount Used
C : Carbon	GLI Procedure ME-14	41.21 %	As Received	2.581 mg
H : Hydrogen	GLI Procedure ME-14	6.39 %	As Received	2.581 mg
N : Nitrogen	GLI Procedure ME-14	6.92 %	As Received	2.581 mg
S : Sulfur	GLI Procedure E16-3	0.293 %	As Received	53.518 mg