

Product Profile

Identification

Product Name: Poly(N-isopropylacrylamide)	CAS: 25189-55-3
Abbreviation: PNIPAM	Lot: P6668-R-NIPAM
Formula: CH ₃ (C ₆ H ₁₁ NO) _n CH ₃	
Product Chemical Architecture:	$\left[\text{CH}_2 - \underset{\begin{array}{c} \\ \text{C}=\text{O} \\ \\ \text{NH} \\ \\ \text{CH} \\ / \quad \backslash \\ \text{H}_3\text{C} \quad \text{CH}_3 \end{array}}{\text{CH}} \right]_n$

Composition:

Mn (g/mole)	231,000
Mw (g/mole)	440,000
Mw/Mn	1.91
dn/dc (mL/g)	0.077

Method of Synthesis

The polymer is prepared by free radical polymerization.

Solubility in different solvents

THF	√	DMF	√
Alcohol	√	CHCl ₃	√
Toluene	X	Water (LCST 32°C)	Depending on its LCST

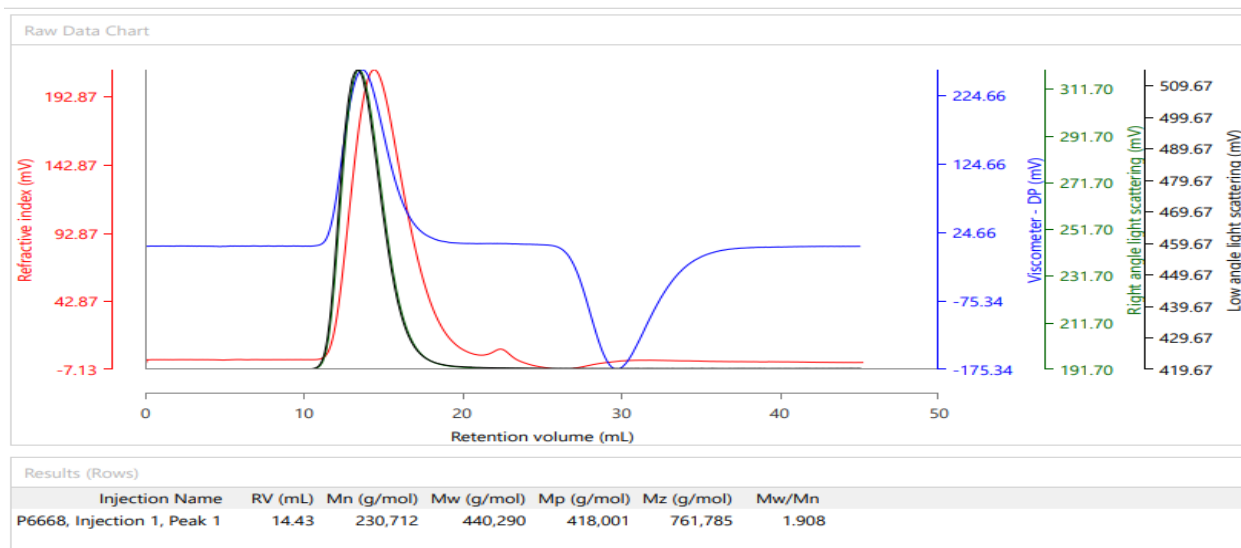
Validation of Architecture

A. Gel Permeation Chromatography (GPC), SEC- Profile:

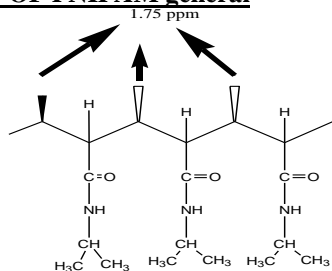
GPC – Malvern Omnisec Triple Detection ,2 Viscotek Mixed 300 x 8.0 mm columns at 35°C, flow 0.7mL/min. Mobile phase (MP): DMF + 0,023M LiBr

Polymer Source

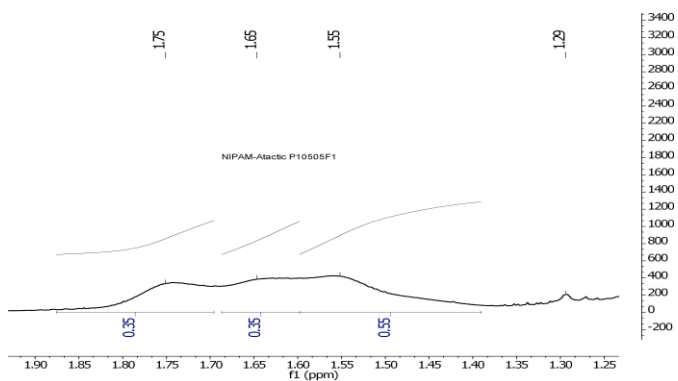
Malvern Panalytical



B. NMR (HNMR) OF PNIPAM general



An example of hetero (rmmr) triads



C. Dependence of glass transition temperature (T_g) of PNIPAM from its molecular weight:

