PDL polylysine

PARAMETER	UNIT	VALUE	REFERENCES
GENERAL			
Common name	-	polylysine, ε-polysine, poly-L-lysine; poly-D-lysine	
IUPAC name	-	poly[imino[(2S)-2-amino-1-oxo-1,6-hexanediyl]	
CAS name	-	28211-04-3; 25104-18-1	
SYNTHESIS			
Method of synthesis	-	biosynthesis	Hiraki, J; Suzuki, E, US Patent 5,900,363, Chisso Corp., May 4, 1999.
Mass average molecular weight, M_w	dalton, g/mol, amu	5,000-150,000	
Polydispersity, M_w/M_n	-	1.14	
COMMERCIAL POLYMERS			
Some manufacturers	-	Chisso Corp./JNC Corp.	
PHYSICAL PROPERTIES			
Color	-	light yellow	
Melting temperature, DSC	°C	142-172	
pKa	-	9-10	
Maximum service temperature	°C	120	
CHEMICAL RESISTANCE			
Good solvent		water and alcohol	
TOXICITY			
Acceptable daily intake	μgrams kg^{-1} body weight day^{-1}	recognized by FDA as GRAS material	
Oral rat, LD_{50}	mg kg^{-1}	>5,000	
PROCESSING			
Additives used in final products	-	iron acetylacetate (magnetic particles)	Yang, G; Zhang, B; Wang, J; Xie, S; Li, X, J. Magnet. Magnet. Mater., 374, 205-8, 2015.
Applications	-	food industry, medicine, pharmaceutical	
Outstanding properties	-	biodegradability, biocompatibility, antimicrobial properties	Vidal, L; Thuault, V; Mangas, A; Covenas, R; Thienpont, A; Geffard, M, J. Amino Acids, 672367, 2014.