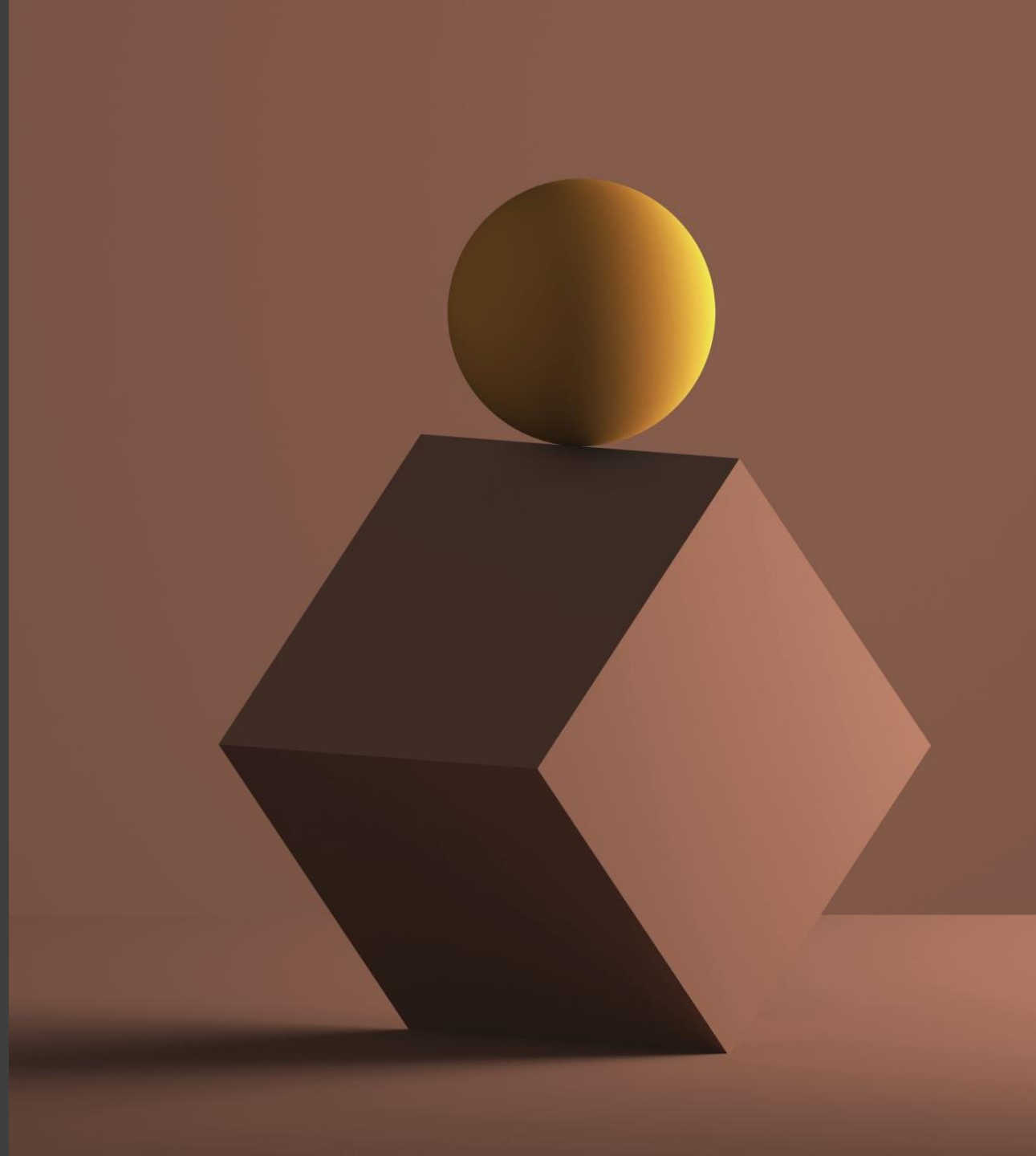
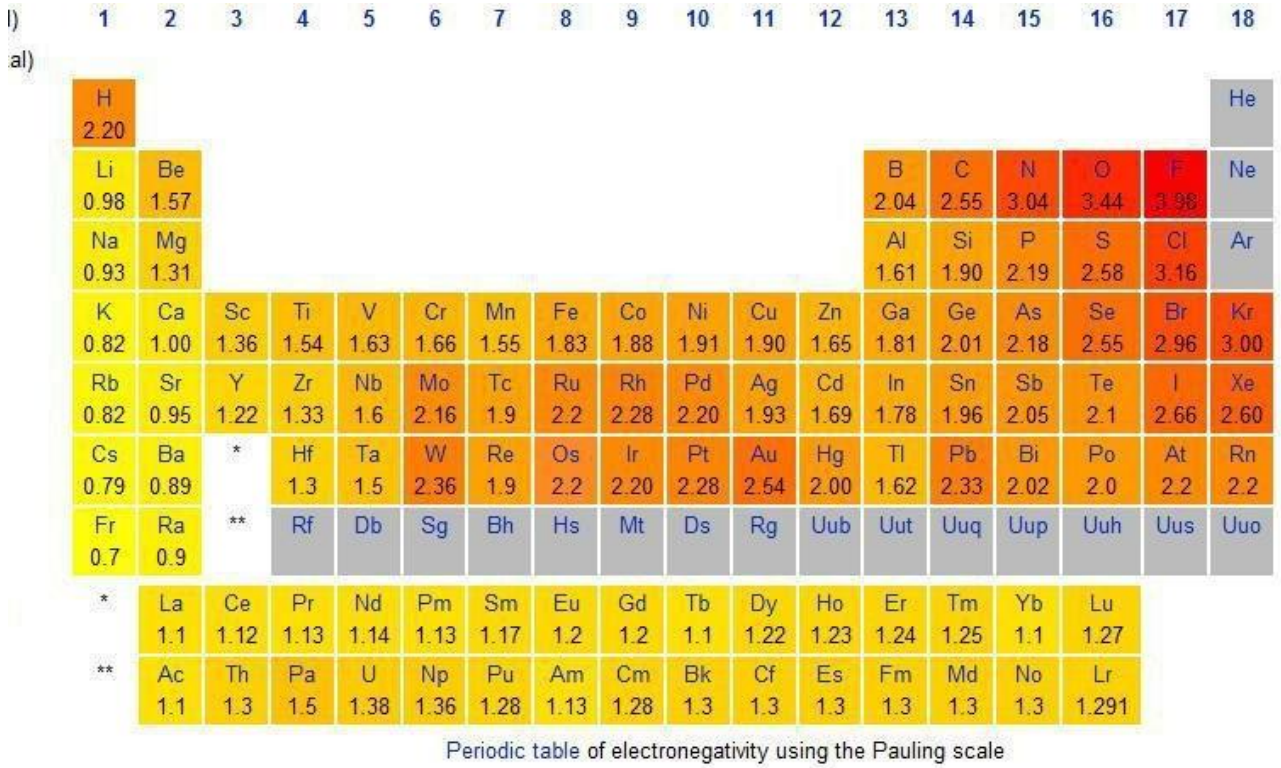
Chemical Stability

03.07.2020



Electronegativity



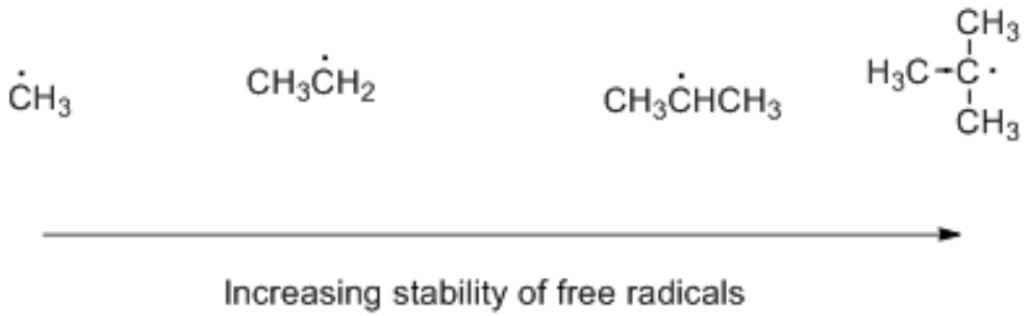
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	H 2.20																	He
	Li 0.98	Be 1.57											B 2.04	C 2.55	N 3.04	O 3.44	F 3.98	Ne
	Na 0.93	Mg 1.31											Al 1.61	Si 1.90	P 2.19	S 2.58	Cl 3.16	Ar
	K 0.82	Ca 1.00	Sc 1.36	Ti 1.54	V 1.63	Cr 1.66	Mn 1.55	Fe 1.83	Co 1.88	Ni 1.91	Cu 1.90	Zn 1.65	Ga 1.81	Ge 2.01	As 2.18	Se 2.55	Br 2.96	Kr 3.00
	Rb 0.82	Sr 0.95	Y 1.22	Zr 1.33	Nb 1.6	Mo 2.16	Tc 1.9	Ru 2.2	Rh 2.28	Pd 2.20	Ag 1.93	Cd 1.69	In 1.78	Sn 1.96	Sb 2.05	Te 2.1	I 2.66	Xe 2.60
	Cs 0.79	Ba 0.89	*	Hf 1.3	Ta 1.5	W 2.36	Re 1.9	Os 2.2	Ir 2.20	Pt 2.28	Au 2.54	Hg 2.00	Tl 1.62	Pb 2.33	Bi 2.02	Po 2.0	At 2.2	Rn 2.2
	Fr 0.7	Ra 0.9	**	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Uub	Uut	Uuq	Uup	Uuh	Uus	Uuo
*		La 1.1	Ce 1.12	Pr 1.13	Nd 1.14	Pm 1.13	Sm 1.17	Eu 1.2	Gd 1.2	Tb 1.1	Dy 1.22	Ho 1.23	Er 1.24	Tm 1.25	Yb 1.1	Lu 1.27		
**		Ac 1.1	Th 1.3	Pa 1.5	U 1.38	Np 1.36	Pu 1.28	Am 1.13	Cm 1.28	Bk 1.3	Cf 1.3	Es 1.3	Fm 1.3	Md 1.3	No 1.3	Lr 1.291		

Periodic table of electronegativity using the Pauling scale

- The electronegativity of different atoms can be calculated and have values assigned to it but the general rule of thumb is that the electronegativity of atoms increases along the period and decreases down the group. This is because the atomic radius decreases along the period but the number of protons increases. The nuclear pull increases and the electrons get attracted towards the nucleus. Down the group, the radius of the atom increases and the electrons are far away and the nucleus strength is relatively weaker on the electrons that are further away from the nucleus. In the 2nd period, Fluorine is the most electronegative with the value of 3.98 and Lithium is the least electronegative with the value of 0.93. This supports the explanation given above as both Fluorine and Lithium are on the two extremes of the 2nd period.

https://alevelchemistry.co.uk/definition/electronegativity/

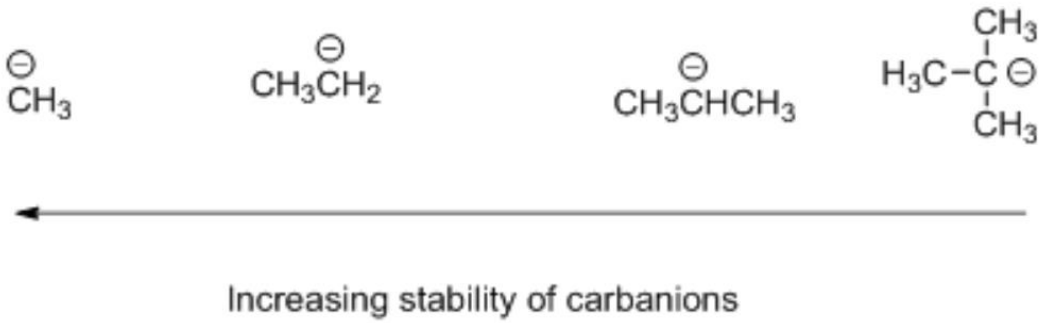
Free radicals



Stability order of free radicals increases as we move from primary to tertiary free radicals, due to +I effect of methyl groups there is a redistribution of lack of electron all over the molecule which reduces the intensity of lack of electron on central carbon and increases the stability of the molecule.

https://alevelchemistry.co.uk/definition/electronegativity/

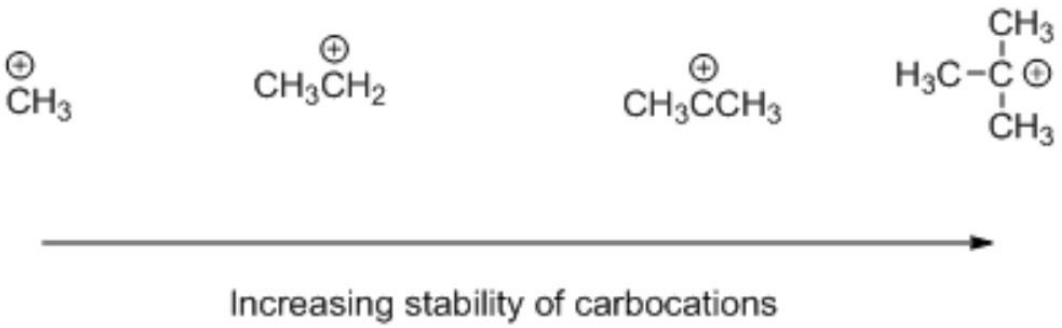
Carbanion



Stability order of carbanions decreases as we move from primary to tertiary anion because due to +I effect of methyl groups there is an increased intensity of negative charge or central carbon of tertiary carbanion which further makes it unstable.

https://alevelchemistry.co.uk/definition/electronegativity/

Carbocations



Stability order of carbocations increases as we move from primary to tertiary cation due to +I effect of methyl groups there is a redistribution of positive charge all over the molecule which reduces the intensity of positive charge on central carbon and increases the stability of the molecule.

https://alevelchemistry.co.uk/definition/electronegativity/

Video Links

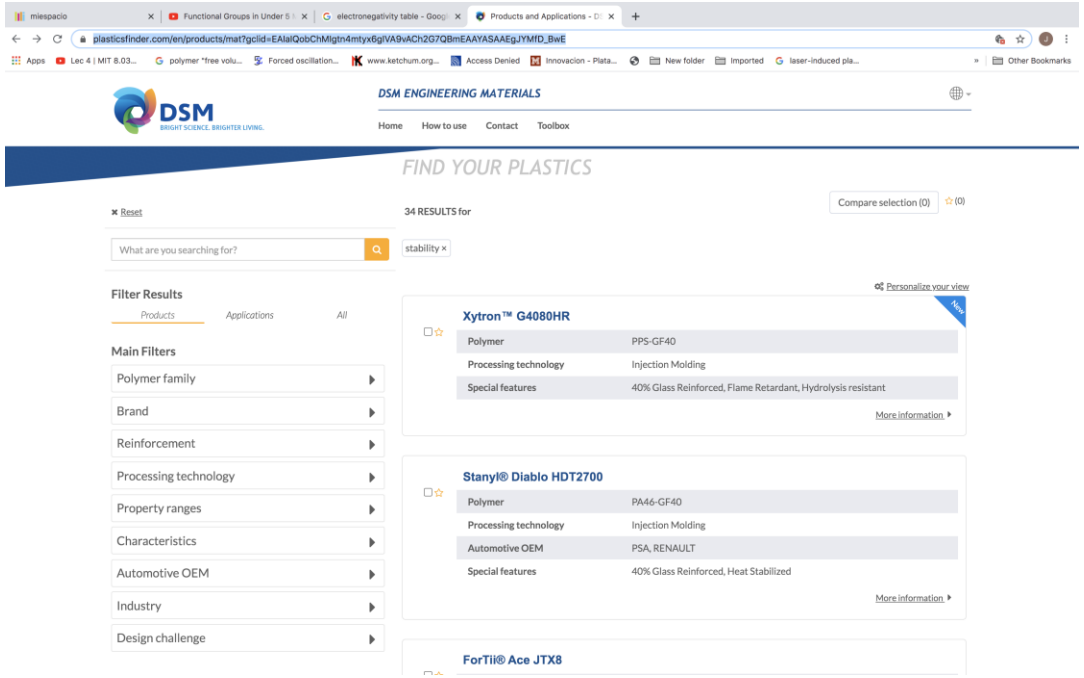
Functional Groups in Under 5 Minutes - Organic Chemistry

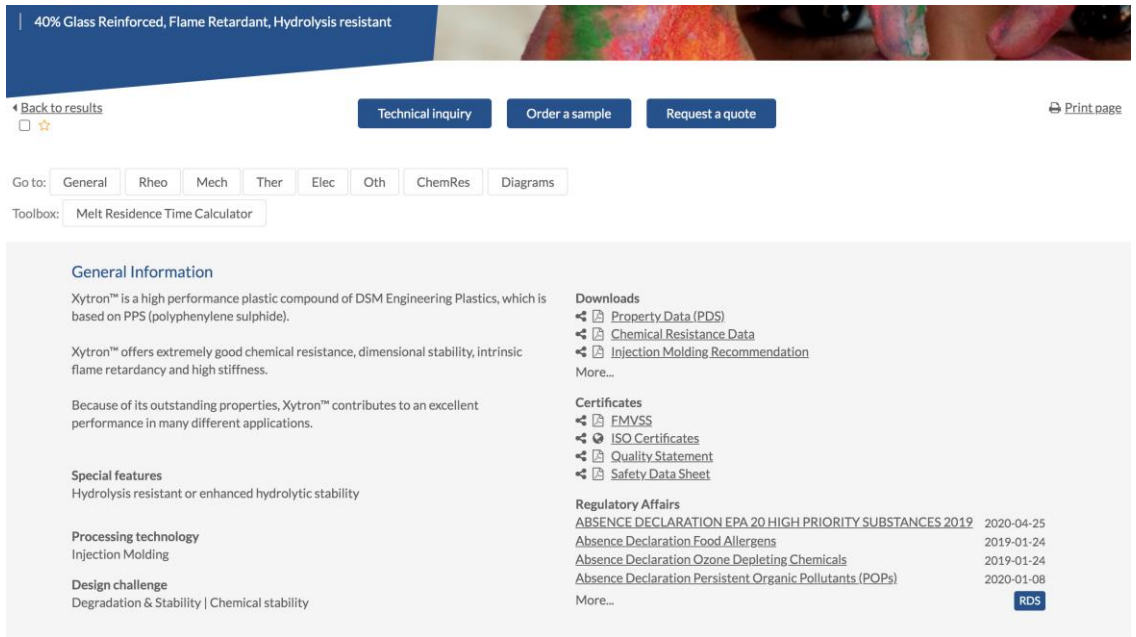
https://www.youtube.com/watch?v=58_UOVLt3s8 (4:15)

How to tell if a molecule will be reactive or not
https://www.youtube.com/watch?v=I_cn8jxeOmQ (5:14)

DSM ENGINEERING MATERIALS

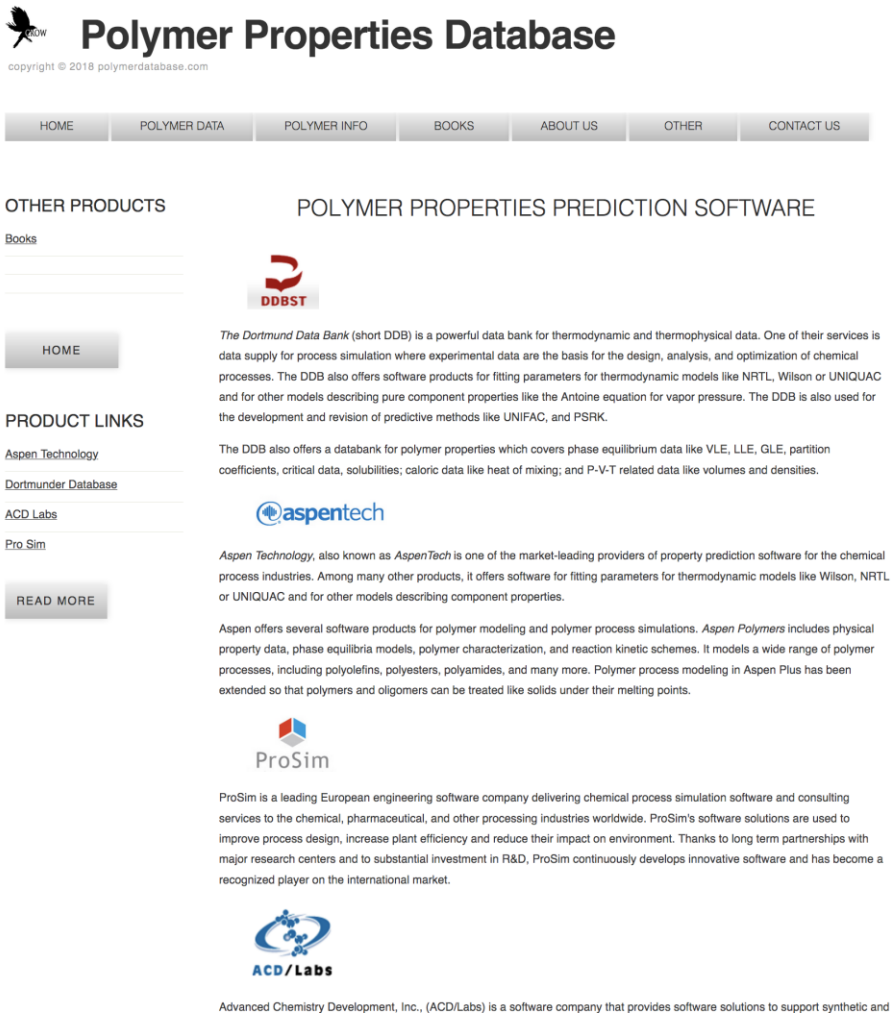
https://plasticsfinder.com/datasheet/ForTii%C2%AE%20Ace%20JTX8/JEy49

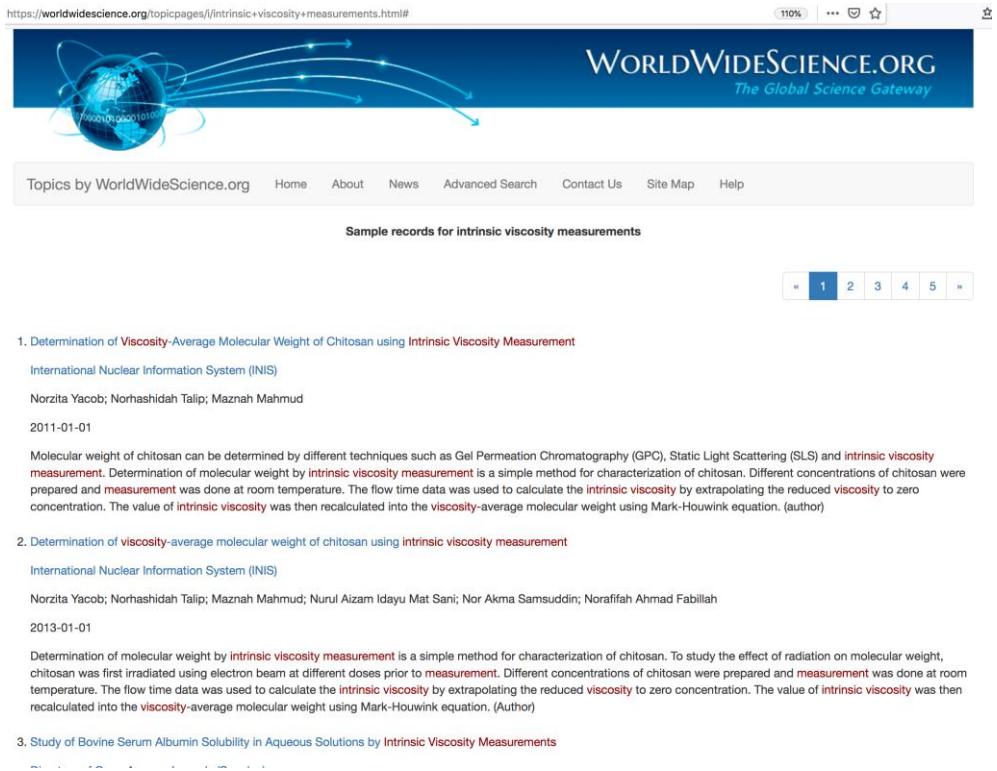


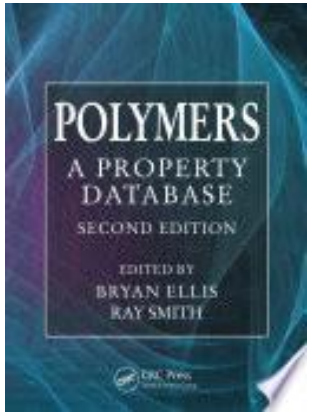


Polymer Properties Database

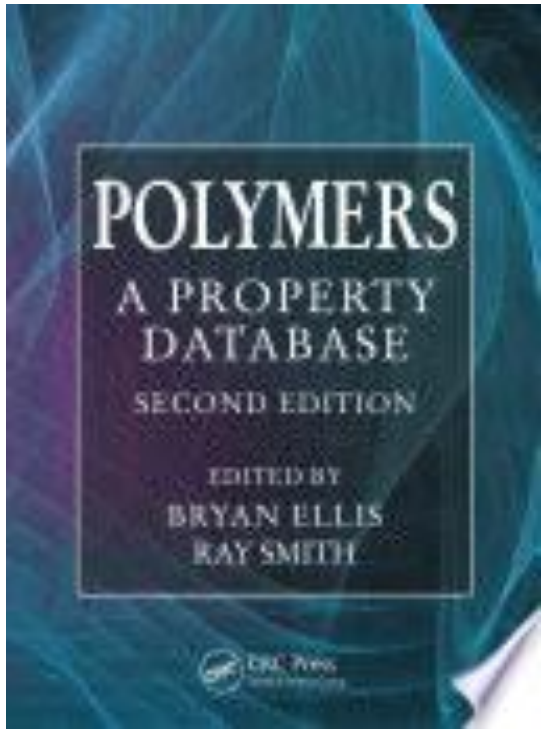
https://polymerdatabase.com/software.html

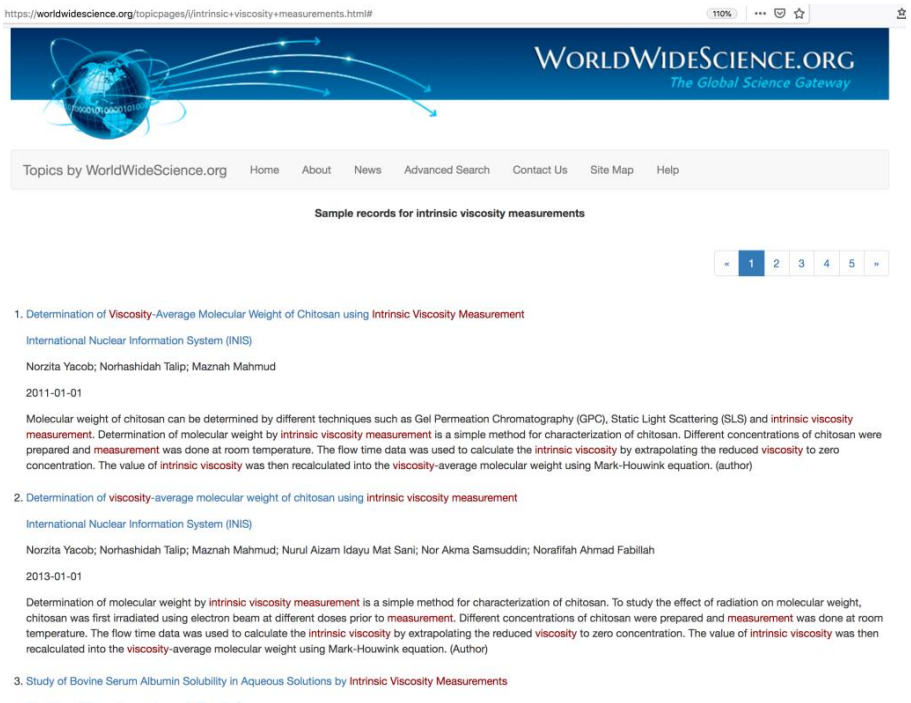






Data Base


POLYMERS
A PROPERTY
DATABASE
SECOND EDITION
EDITED BY
BRYAN ELLIS
RAY SMITH


https://worldwidescience.org/topicpages/i/intrinsic+viscosity+measurements.html#
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Sample records for intrinsic viscosity measurements
1. Determination of Viscosity-Average Molecular Weight of Chitosan using Intrinsic Viscosity Measurement
International Nuclear Information System (INIS)
Norzita Yacob; Norhashidah Talip; Maznah Mahmud
2011-01-01
Molecular weight of chitosan can be determined by different techniques such as Gel Permeation Chromatography (GPC), Static Light Scattering (SLS) and intrinsic viscosity measurement. Determination of molecular weight by intrinsic viscosity measurement is a simple method for characterization of chitosan. Different concentrations of chitosan were prepared and measurement was done at room temperature. The flow time data was used to calculate the intrinsic viscosity by extrapolating the reduced viscosity to zero concentration. The value of intrinsic viscosity was then recalculated into the viscosity-average molecular weight using Mark-Houwink equation. (author)
2. Determination of viscosity-average molecular weight of chitosan using intrinsic viscosity measurement
International Nuclear Information System (INIS)
Norzita Yacob; Norhashidah Talip; Maznah Mahmud; Nurul Aizam Idayu Mat Sani; Nor Akma Samsuddin; Norafifah Ahmad Fabillah
2013-01-01
Determination of molecular weight by intrinsic viscosity measurement is a simple method for characterization of chitosan. To study the effect of radiation on molecular weight, chitosan was first irradiated using electron beam at different doses prior to measurement. Different concentrations of chitosan were prepared and measurement was done at room temperature. The flow time data was used to calculate the intrinsic viscosity by extrapolating the reduced viscosity to zero concentration. The value of intrinsic viscosity was then recalculated into the viscosity-average molecular weight using Mark-Houwink equation. (Author)
3. Study of Bovine Serum Albumin Solubility in Aqueous Solutions by Intrinsic Viscosity Measurements