

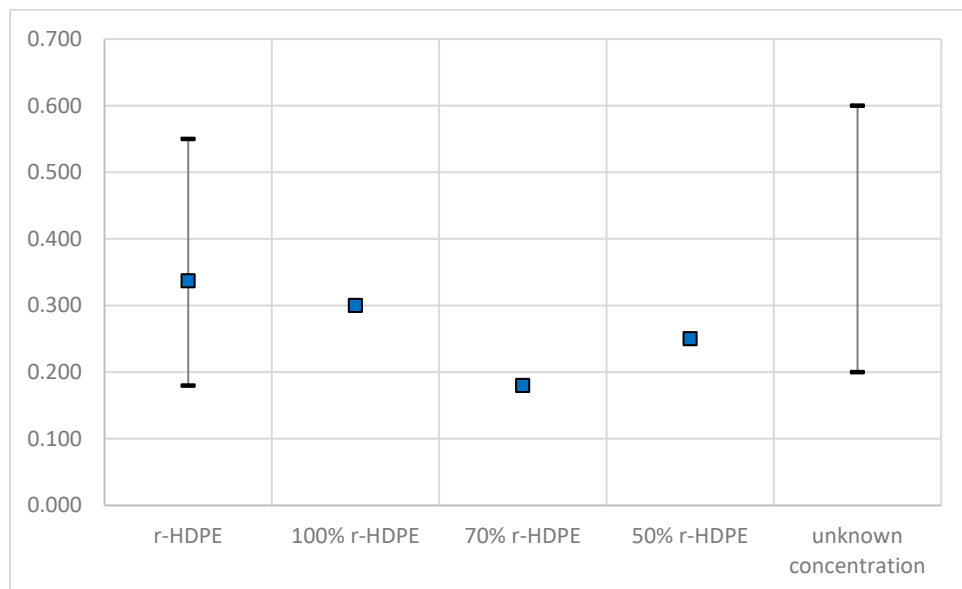
Table S1 – HDPE grade assessed

Supplier	Country Headquarter	Grade	Colour	Origin of waste	Origin of waste Area	% recycled	De-odourised	MFI 190C / 2.16kg	MFI 190C / 1kg	MFI 190C / 21.6kg	Density g/cm ³	Tensile strength at yield 50mm/min	Tensile strength at Break Mpa 50mm/min	Color L	Color b
Ecoblue	Thailand	HD CCA 01 FDA	Natural			100	Yes	0.3			> 0.94	23		70	9
Ecoblue	Thailand	HD CCA 01	Natural			100	Yes	0.3			> 0.94	23		70	9
Repsol	Spain	50RX5503		Industrial		50		0.25			0.955		20		
Repsol	Spain	50RX55050		Industrial		50				10.5	0.96	28	35		
Repsol	Spain	70RX5203		Post-Consumer		70		0.18		18	0.952		28		
Repsol	Spain	80RX55050		Post-Consumer		80				10.5	0.96	25	25		
Vanden Recycling	Australia	HDPE 1404 Nat	Natural	it-Consumer bott	MEA			0.4 to 0.6	2 to 2.6		0.94 to 0.96				
Vanden Recycling	Australia	HDPE 36 Nat	Natural	it-Consumer bott	Asia			0.467			0.94 to 0.96				
Vanden Recycling	Australia	HDPE 988 Nat	Natural	it-Consumer bott	Europe			0.3 to 0.5	1.3 to 2		0.94 to 0.96		23		
Vanden Recycling	Australia	HDPE 1404 Green	Green	it-Consumer bott	MEA			0.2 to 0.4	1.4 to 2		0.95				
Martogg	Australia	Marlene HDPE R02	Natural	Post consumer				0.55			0.96	28.5			
Kingfa via Primaplas	Australia	GH6100		Post consumer		100		0.3			0.946		30.5	83	8.5
InnoEco via Primaplas	Australia	HN035NB		Post consumer				0.35			0.963	29.42	16.96		

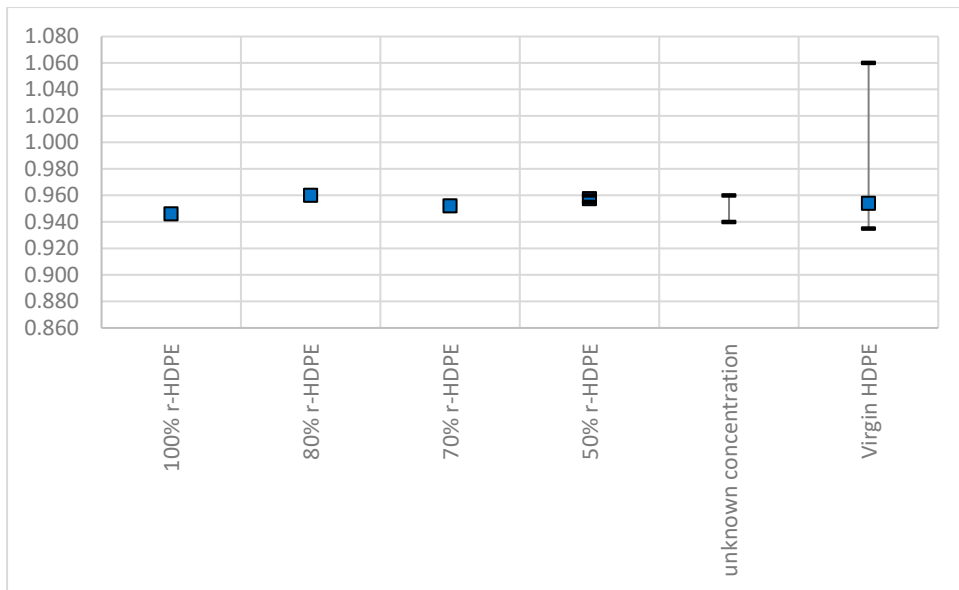
Table S1 – part 1

Grade	Elongation at break % 50mm/min	Notched Izod impact strength	Charpy impact strength 23C, notched KJ/m ²	Flexural Strength Speed 1.43mm/min / 52.7mm/min	Flexural Modulus Speed 1.43mm/min Span 53.3mm	Moisture	Bulk density	Chips/gm	Pellet with black specs >0.5 mm	Stress cracking resistance IGEPAL 10% SOC (BSCR) F50 h	Vicat Softening Temperature (10N) °C	Shore hardness D	Ash content % @800C	Melting Point °C	Colour A
HD CCA 01 FDA	>50	>220		20	650	<0.25	450 to 600	45 to 55	<5						
HD CCA 01	>50	>220		20	650	<0.25									
50RX5503	570		8.3		1100					100					
50RX55050	730		15		1000										
70RX5203	700		9		1100						125	62			
80RX55050	550		15		950										
HDPE 1404 Nat													< 1.5		
HDPE 36 Nat		22													
HDPE 988 Nat					800										
HDPE 1404 Green															
Marlene HDPE R02	400	28.5		22.3	0.9 Gpa										
GH6100	768	65		22	820					20		55	0.1	130	-1.6
HN035NB	460	9.3			13800					24				132	

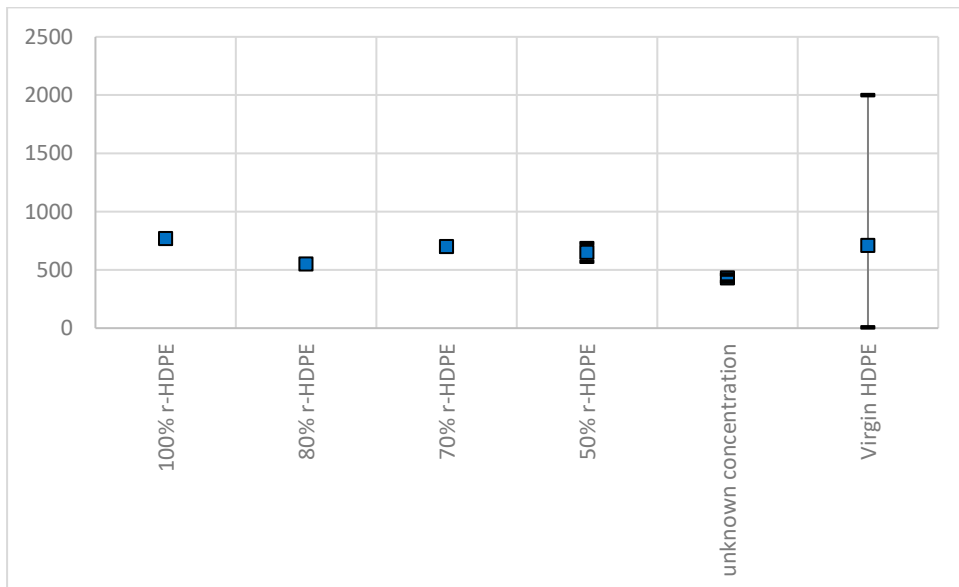
Table S1 – part 2



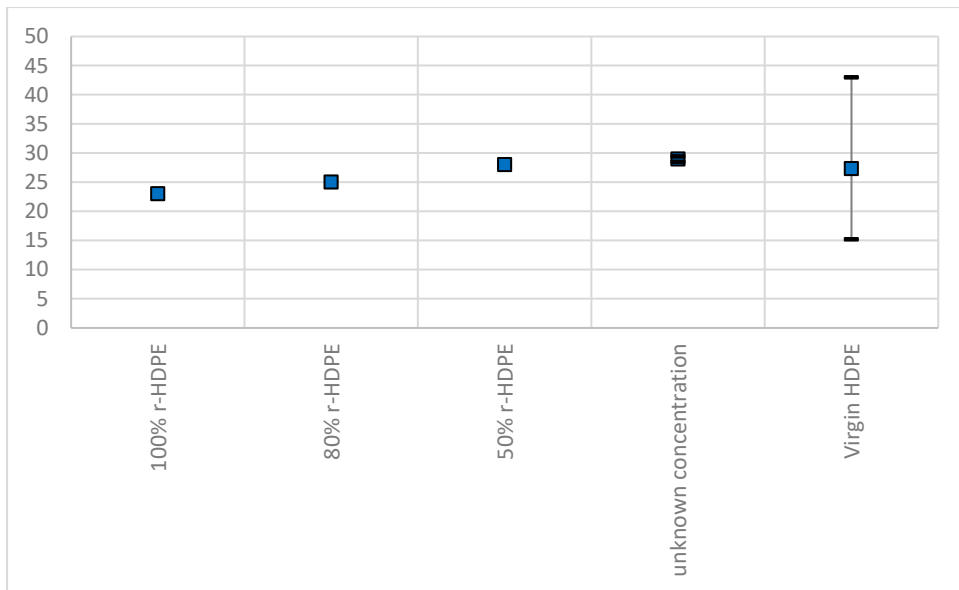
MFI 190C - 2.16Kg # g/10min



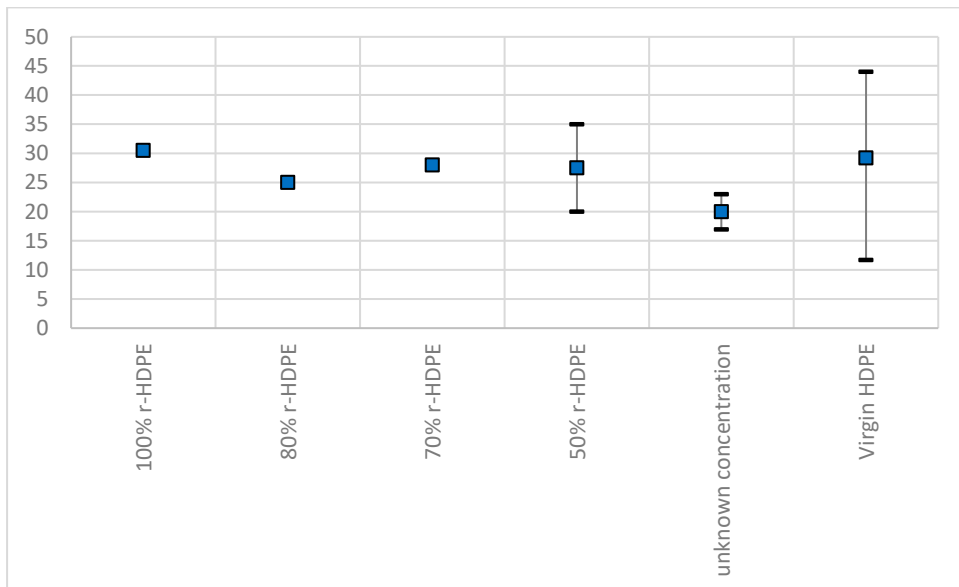
Density (Virgin – 375 Ref) # g/cc



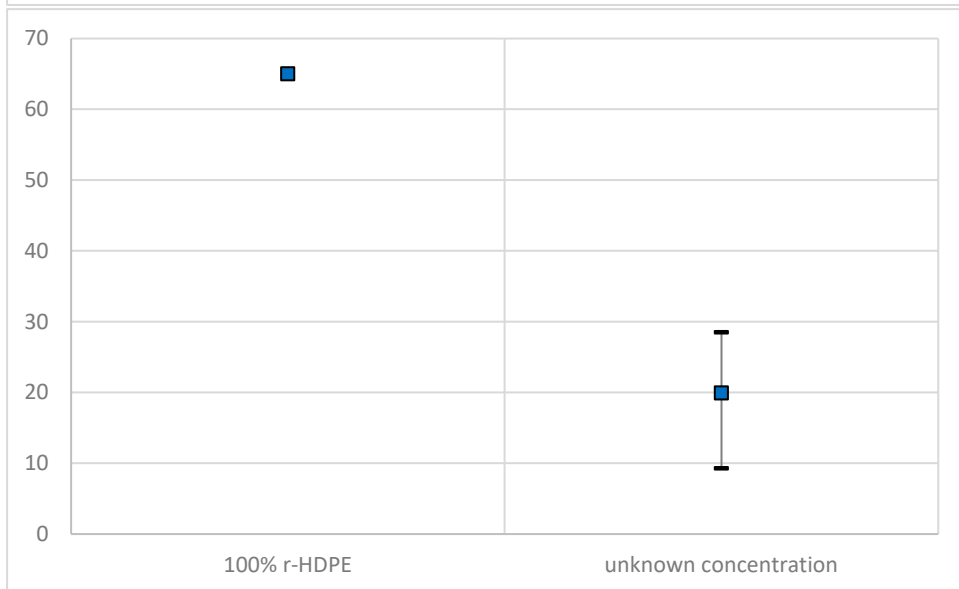
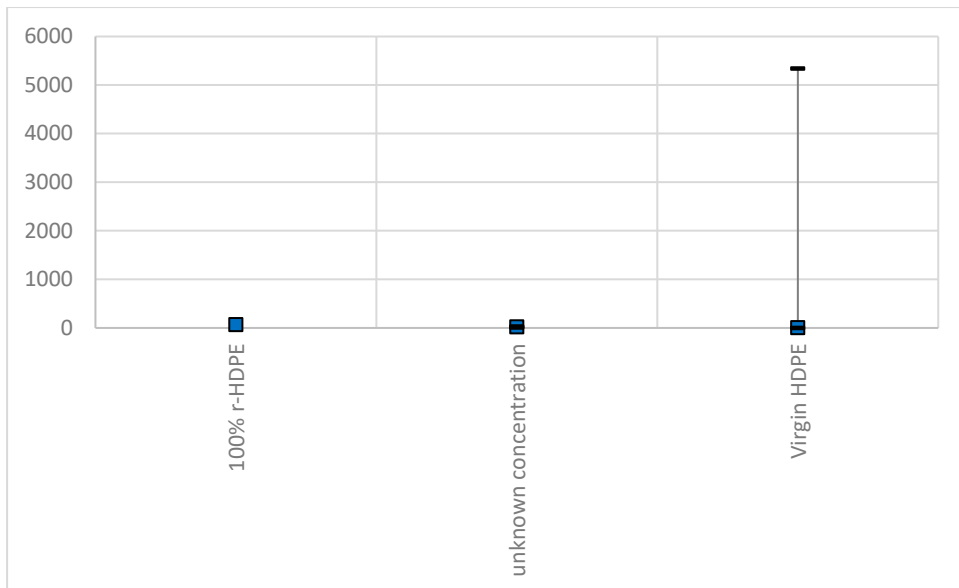
Elongation at Break (Virgin – 265 Ref) # %



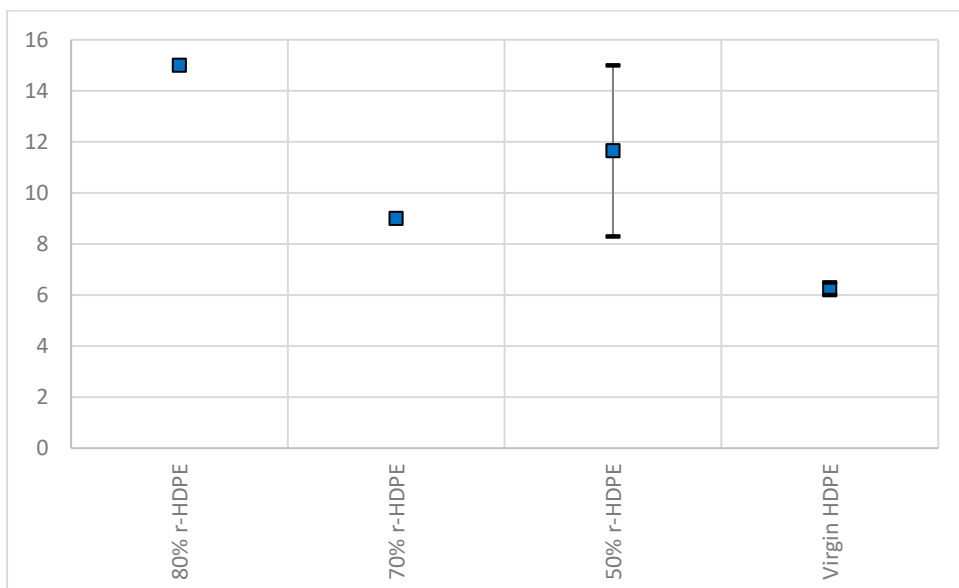
Tensile strength at Yield (Virgin – 314 Ref) # %



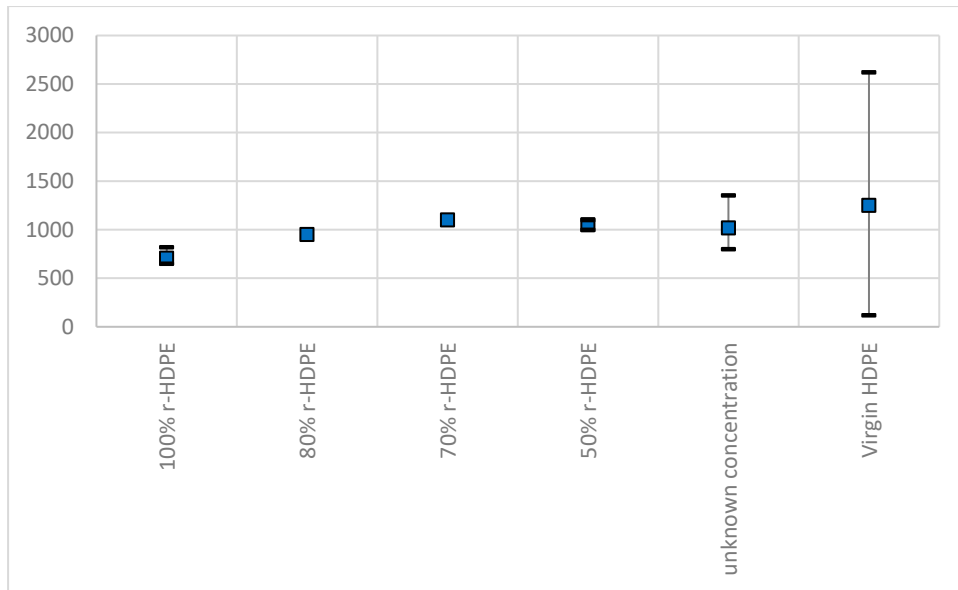
Tensile strength at Break (Virgin – 128 Ref) # MPa



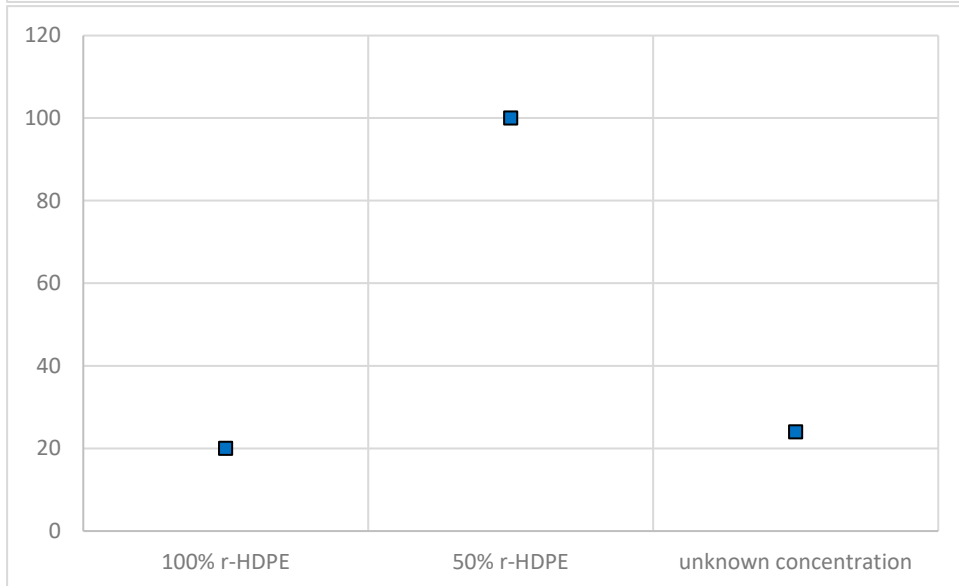
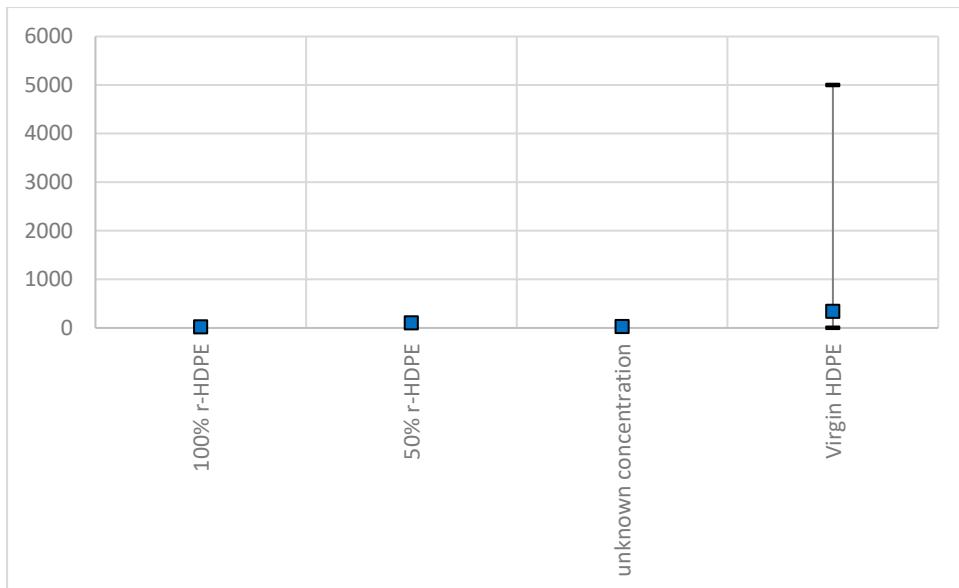
Notched Izod impact strength (Virgin – 80 Ref) # J/cm



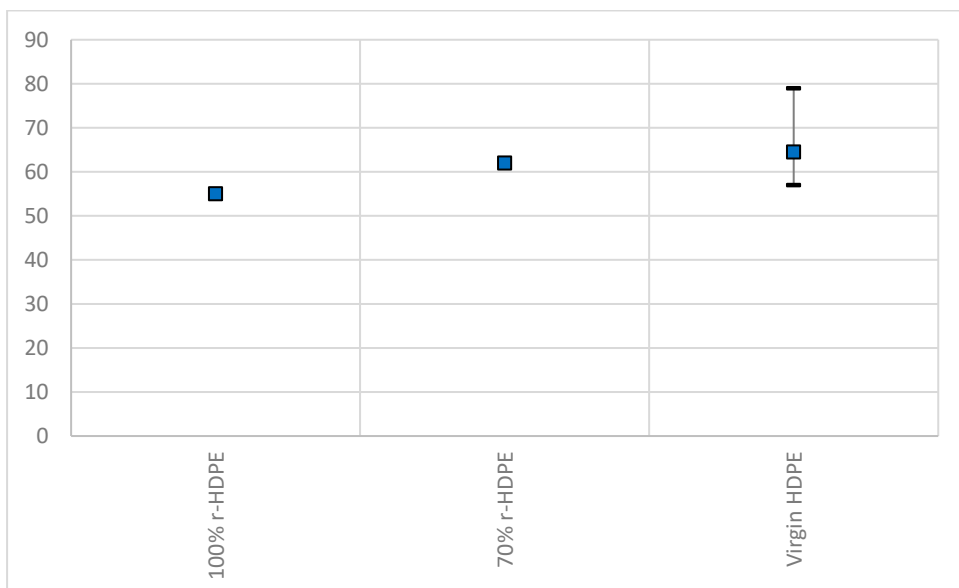
Charpy impact strength (Virgin – 2 Ref) # KJ/m2 @23C



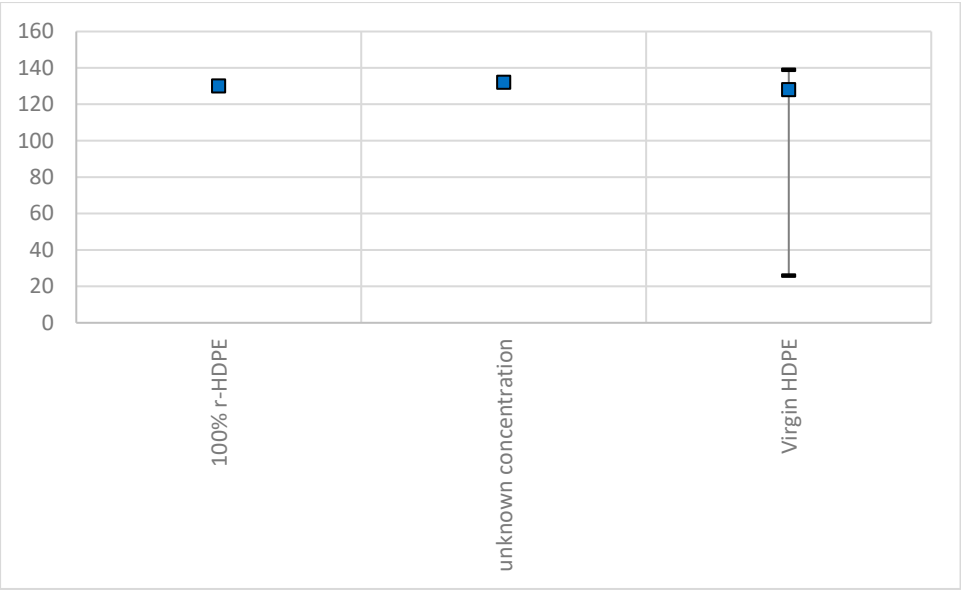
Flexural Modulus (Virgin – 297 Ref) # MPa



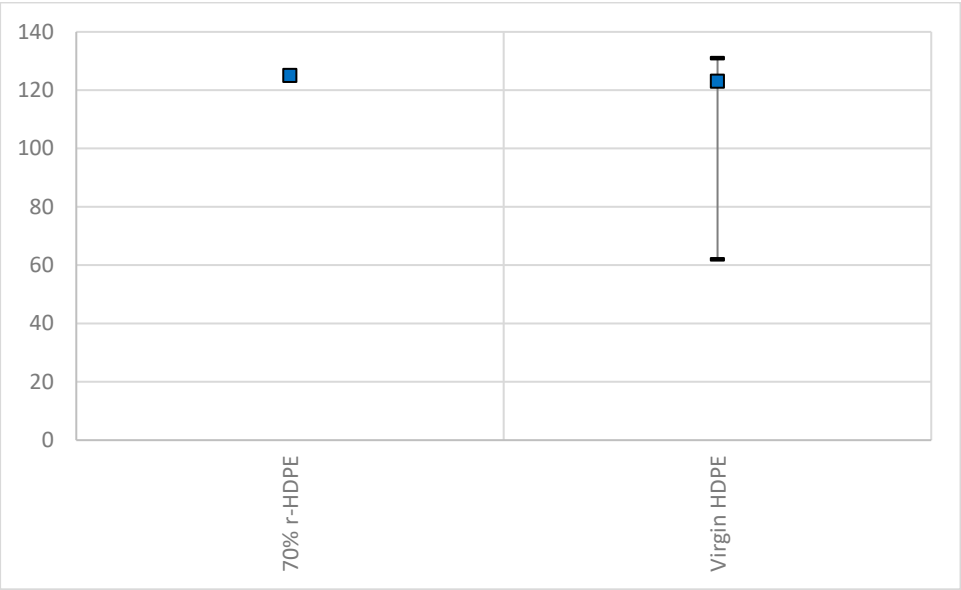
Stress Cracking resistance (Virgin – 223 Ref) # hour @ IGEPAL 10%, 50C (ESCR) F50



Hardness Shore D (Virgin – 164 Ref)



Melting Point (Virgin – 48 Ref) # C



Vicat Softening Temperature (Virgin – 204 Ref) # C @10N