

Supplementary Materials

Prediction of Green Solvent Applicability in Cultural Heritage using Hansen Solubility parameters, Cremonesi Method and Integrated Toxicity Index

Table S1. Cremonesi mixtures with % of pure solvents and Teas solubility parameters.

Mixture Code	Ligroin (%)	Acetone (%)	Ethanol (%)	Fd	Fp	Fh
L	100	0	0	97	2	1
LA1	90	10	0	92	5	3
LA2	80	20	0	87	8	5
LA3	70	30	0	82	11	7
LA4	60	40	0	77	14	9
LA5	50	50	0	72	17	11
LA6	40	60	0	67	20	13
LA7	30	70	0	62	23	15
LA8	20	80	0	57	26	17
LA9	10	90	0	52	29	19
A	0	100	0	47	32	21
LE1	90	0	10	91	4	5
LE2	80	0	20	85	5	10
LE3	70	0	30	79	7	14
LE4	60	0	40	73	8	19
LE5	50	0	50	67	10	23
LE6	40	0	60	60	12	28
LE7	30	0	70	54	13	33
LE8	20	0	80	48	15	37
LE9	10	0	90	42	16	42
E	0	0	100	36	18	46
AE1	0	75	25	44	29	27
AE2	0	50	50	42	25	33
AE3	0	25	75	39	21	40

Table S2. Physicochemical properties most commonly reported in different SDS expressed as mean value: Surface Tension (SD) = 0.5–2 mN/m, Vapor Pressure (SD) = 5%, Boiling Point (SD) = ± 1 –5 °C, Melting Point (SD) = ± 0.5 –3 °C, Density (SD) = ± 0.001 –0.01 g/cm³, and Flash Point (SD) = ± 1 –5 °C

Green Solvents	Molecular Weight (g/mol)	Odor	Surface Tension (mN/m)	Vapor Pressure (hPa)	Boiling Point (°C)	Melting Point (°C)	Density (g/cm ³)	Flash Point (°C)
1,3-dioxolane	74.08	Odorless	71.7	93	75–75°C	-95	1.064	-3
1-Butyl-3-Methylimidazolium Chloride	174.67	No data available	No data available	No data available	No data available	73	1.1	No data available
1-Ethyl-3-methylimidazolium acetate	170.2	Faintly acetic acid and imidazoles	No data available	<0.000001	No boiling point	<0	1.101	164

1-Ethyl-3-methylimidazolium tetrafluoroborate	197.97	No data available	No data available	No data available	>350	15	1.287	113
2,5-Dimethyltetrahydrofuran	100.16	No data available	No data available	No data available	90 - 92	-128.9	0.833	27
2-Ethylhexyl pelargonate	270.45	No data available	No data available	No data available	311.8±10.0 (Predicted)	No data available	No data available	No data available
2-Methyloxolane (2-Methyltetrahydrofuran)	86.13	No data available	No data available	136	78	<-20	0.86	-10
Agnique® ME (mix methyl ester)	Variable	Strong specific	No data available	0.39	204	-44	0.88	84
Benzyl Alcohol	108.14	No data available	No data available	No data available	205	-16	1.05	101
Butyl Lactate	146.18	No data available	No data available	0.5	185	-28	0.984	69
WAX RESCUE	160.25	No data available	25.2	0.79	182.5	-59	0.835	62.2
Choline Chloride	139.62	No data available	No data available	No data available	300	302	No data available	Not applicable
Choline chloride: Lactic acid (1:2)	106.59	No data available	70.7	No data available	181.3	47.3	1.209	113.0
Choline chloride: Urea (1:2)	86.58	No data available	No data available	0.1	Not estimated	188.67	1.25	Not estimated
Cyclopentyl Methyl Ether	100.16	No data available	65.1	42.7	107	102	0.86	<3
Cyrene	128.13	No data available	72.5	0.28	227	-20	1.25	108
Dimethyl Carbonate	90.08	No data available	31.92	24	90	2-4	1.07	16
Dimethyl Glutarate	160.17	No data available	67.3	0.1	216	-38	1.09	109
Dimethyl sulfoxide	78.13	Odorless	43.5	0.55	189	16-19	1.1	87
Ethanol	46.07	No data available	No data available	5.95	78	-114	0.789	9
Ethyl lactate	118.13	No data available	No data available	3	154	-26	1.031	46
Glycerol (anhydrous)	92.09	Odorless	ca.63.4	< 0.001	290	18.17	1.261	199
Glycerol Carbonate	119.08	No data available	No data available	No data available	ca.137 - 140	No data available	No data available	ca.110
Glycerol Formal	208.209	No data available	No data available	No data available	192	No data available	1.203	93
Glycerol Triethyl Ether	260.28	No data available	No data available	1.80×10 ⁻⁵	378.7	No data available	1.251	158.7
Glycerol Trimethyl Ether	206.28	Ether-like	68.8	0	100	-78	0.963	113
Isopropanol	60.1	Alcohol-like	20.8	43	82.4	-89.5	0.786	12
Isopropyl Palmitate	298.5	No data available	No data available	0.0000745	160	13.5	0.853	113
Isosorbide Dimethyl Ether	174.2	No data available	No data available	No data available	93-95	-70	1.160	>110

Lactic acid	90.08	Odorless	70.7	No data available	122	<-80	1.209	113
Levogluosenone	126.11	No data available	No data available	No data available	No data available	No data available	No data available	No data available
Limonene (D- (+) - Limonene)	136.2	Lemon-like	No data available	2	175-178	-74	0.84	51
Methanol	32.04	Characteristic	No data available	169.27	64.7	-98	0.791	9.7
Methyl 5-(dimethylamino) -2-methyl-5-oxopentanoate	187.24	No data available	No data available	No data available	No data available	No data available	No data available	No data available
Methyl decanoate	186.29	No data available	No data available	0.0493	224	-14- -11	0.871	110.5
Methyl isocyanate	57.06	Penetrating	No data available	513	38	19.5 – 21.5	0.97	-6
Methyl Caproate (Methyl hexanoate)	130.18	No data available	No data available	5	151	-71	0.885	37.5
Methyl Capylate (Caprylic acid methyl ester)	158.24	No data available	No data available	71.99	194-195	-40	0.877	82
Methyl Cocoate (Coconut fatty acid methyl esters)	Variable (228.38-232.78)	No data available	29.6	0.00189	276.1	-2.4	0.865	109
Methyl Laurate	214.34	fatty odor. floral	No data available	0.0055	262	4-5	0.87	139
Methyl linoleate	294.47	No data available	No data available	1.21×10 ⁻⁵	670.91	-35	0.88	113
Methyl Myristate	242.4	No data available	No data available	6.56	295.85	19	No data available	112
Methyl Oleate	296.5	No data available	No data available	13.3	168 – 170	No data available	0.87	113
Methyl Palmitate	270.46	No data available	No data available	0.00008	185	30	0.85	113
Methyl Ricinoleate	312.49	No data available	No data available	2.21×10 ⁻⁸	211.42	171	0.926	209
Methyl Soyate	296.49	Characteristic	No data available	No data available	523.10	-2	0.87	180
Methyl Stearate (C18)	298.5	No data available	No data available	0.0002	637.7–641.7	37-41	0.865	110.0
Methylal (SOLVAGREEN® ≥99.9 % synthesis)	76.1	Pungent - Chloroform-like	21.2	40	45.5	-104.8	0.859	-30.5
Propylal	132.2	Characteristic	23.43	20	137.4	-97.3	0.83	26
Propylene Carbonate	102.09	Fruity	No data available	0.17	240	-55	No data available	132
Propylene Glycol	76.09	No data available	71.84	0.2	184	ca< -20	1.036	104
Solketal (2,2-Dimethyl-1,3-dioxolane-4-methanol)	132.16	Slight	No data available	0.32-<0.36	188-189	-50	No data available	90

Tetrahydropyran	86.13	No data available	No data available	No data available	87-89	-45	0.884	-16
Triacetin	218.2	Fatty	No data available	0.003	ca258 - 259	ca-78	1.161	148
α -Pinene	136.23	No data available	No data available	No data available	155-156	No data available	0.858	31
γ -Valerolactone	100.12	No data available	No data available	0.44	82 - 85	-31	1.05	96
Ethyl Acetate	88.11	Fruity	No data available	No data available	76.5-77.5	-84	0.9	-4
Ethylene glycol	62.07	Odorless	48.4	0.273	196-198	-13	1.113	115

Table S3. Toxicity Parameters of green solvents.

Green Solvents	CAS Number	LD50 Oral (Rat-mg/kg)	LD50 Dermal (Rat-mg/kg)	Precautionary Statements	Hazard Statements	Pictograms
1,3-dioxolane	646-06-0	5200	15000	P202 P210 P233 P240 P305+P351+P338 P308+ P313 P264 P270 P280 P261 P271 P304 +P340 P312 P302 +P352 P332 +P313 P362 +P364 P305+P351+P338 P337 + P313 P301 + P310 P330 P405 P403+P233 P501 P261 P280	H225 H319 H360 H311	GHS02 GHS08 GHS07
1-Butyl-3-Methylimidazolium Chloride	79917-90-1	>50 -<300	Not listed	P302 +P352 P332 +P313 P362 +P364 P305+P351+P338 P337 + P313 P301 + P310 P330 P405 P403+P233 P501 P261 P280	H301 H315 H335 H319	GHS06
1-Ethyl-3-methylimidazolium acetate	143314-17-4	>2000	>2000 - <5000	P302+P352 P333+P313 P362+P364 P501	H315 H317	GHS07

1-Ethyl-3-methylimidazolium tetrafluoroborate	143314-16-3	>300-2000	>2000	P260 P264 P270 P280 P305+P351+P388 P321 P332+P313 P405 P501 P210 P233 P240 P280 P303+P361+P353 P370+P378 P403+P235 P501	H302 H314 H315 H319 H411	GHS09 GHS07 GHS05
2,5-Dimethyltetrahydrofuran	1003-38-9	No data available	No data available	P280 P303+P361+P353 P370+P378 P403+P235 P501	H226	GHS02
2-Ethylhexyl pelargonate	59587-44-9	No data available	No data available	P280 P305+P351+P338	H302 H315 H319 H335	GHS07
2-Methyloxolane (2-Methyltetrahydrofuran)	96-47-9	300 – 2000	>2000	P210 P233 P280 P301+P312 P303+P361+P353 P305+P351+P338 P314 P302+P352 P361+P364 P305 + P351 + P338 P337 + P313 P312 P261 P264 P271 P301+P312 P304+P340+P312 P305+P351+P338	H225 H302 H315 H318	GHS05 GHS07 GHS02
Agnique® ME (mix methyl ester)	85566-26-3	>2000	No data available	P314 P302+P352 P361+P364 P305 + P351 + P338 P337 + P313 P312 P261 P264 P271 P301+P312 P304+P340+P312 P305+P351+P338	No require	No require
Benzyl Alcohol	100-51-6	1620	No data available	P210 P280 P370+P378 P403+P235 P501	H302 H332 H319	GHS07
Butyl Lactate	138-22-7	No data available	No data available	No require	No require	No require
WAX RESCUE	2568-90-3	6873	>2000	P210 P280 P370+P378 P403+P235 P501	H227	GHS07
Choline Chloride	67-48-1	3900*	No data available	No require	No require	No require
Choline chloride: Lactic acid (1:2)	-	3654	2388**	P280 P303+P361+P353 P304+P340+P310	H314 H318	GHS05

				P305+P351+P338 P363 P405		
Choline chloride: Urea (1:2)	-	6091	2388**	No require	No require	No require
Cyclopentyl Methyl Ether	5614-37-9	200-2000	>2000	P210 P233 P240 P301+P312 P303+P361+P353 P305+P351+P338	H225 H302 H315 H319	GHS02 GHS07
Cyrene	53716-82-8	2000	No data available	P264 P280 P305 + P351 + P338 P337 + P313	H319	GHS07
Dimethyl Carbonate	616-38-6	>5000	>2000	P210 P233 P240 P241 P242 P243 P304 +P340 P302+P352 P361+P364 P305+P351+P338 P301+P330 P312	H225	GHS02
Dimethyl Glutarate	1119-40-0	5000	> 2000	No require	No require	No require
Dimethyl sulfoxide	67-68-5	28300	40000	No require	No require	No require
Ethanol	64-17-5	10470	No data available	P210 P233 P240 P241 P305+P351+P338 P308+311	H225 H319 H371	GHS02 GHS07 GHS08
Ethyl lactate	97-64-3	> 2000	> 5000**	P210 P233 P240 P280 P305+P351+P338 P303 + P361 + P353	H226 H315 H318 H335	GHS02 GHS07 GHS05
Glycerol (anhydrous)	56-81-5	27200	56750***	No require	No require	No require
Glycerol Carbonate	1379618-83-3	>5000	>3000**	No require	No require	No require
Glycerol Formal	99569-11-6	No data available	No data available	P305+P351+P338	H319	GHS07
Glycerol Triethyl Ether	13236-02-7	No data available	No data available	P264 P280 P261	H315 H317	GHS07

(Glycerol triglycidyl ether)				P272 P271 P302+P352 P321 P332+P317 P362+P364 P333+P317 P305+P351+P338 P304+P340 P319 P403+P233 P405 P501	H319 H335		
Glycerol Trimethyl Ether (Tri(propylene glycol) methyl ether)	25498-49-1	3500	15440**	No require	No require	No require	
Isopropanol (Isopropyl alcohol)	67-63-0	5840	12800**	P210 P233 P240 P241 P242 P305+P351+P338	H225 H319 H336	GHS07 GHS02	
Isopropyl Palmitate	142-91-6	>5000*	>5000**	No require	No require	No require	
Isosorbide Dimethyl Ether	5306-85-4	No data available	No data available	No require	No require	No require	
Lactic acid	50-21-5	3543	>2000**	P280 P303+P361+P353 P304+P340+P310 P305+P351+P338 P363 P405 P264 P270 P280 P301+P312 P305+P351+P338 P337+P313	H314 H318	GHS05	
Levogluconone	37112-31-5	No data available	No data available	P210 P273 P280 P302+P352	H302 H319	GHS07	
D-(+)-Limonene	5989-27-5	> 2000	No data available	P210 P233 P280 P301+P310	H226 H315 H317 H304 H400 H412 H225 H301+ H311+ H331 H370	GHS02 GHS07 GHS08 GHS09	
Methanol	67-56-1	100.1 [□]	300.1 [□]				

Methyl 5-(dimethylamino)-2-methyl-5-oxopentanoate	1174627-68-9	No data available	No data available	P303+P361+P353 P304+P340+P311	H319	GHS07
				P264 P280 P305+P351+P338		
Methyl decanoate	110-42-9	>2000	No data available	P273 P391 P501	H411	GHS09
Methyl isocyanate	624-83-9	100	300	P210 P280 P301+P310 P304+P340 P305+P351+P338 P370+P378 P403+P233 P403+P235	H225 H301 H311 H330 H315 H318 H334 H317 H316d H335	GHS02 GHS05 GHS06 GHS08
Methyl Caproate (Methyl hexanoate)	106-70-7	>2000	no irritation* *	P210 P240 P241 P303+P361+P353 P370+P378	H226	GHS02
Methyl Caprylate (Caprylic acid methyl ester)	111-11-5	>2000	No data available	No require	No require	No require
Methyl Cocoate (Coconut fatty acid methyl esters)	61788-59-8	>2000	>5000**	P264 P271 P303+P361+P353 P305+P351+P338 P337+P313 P362 P370+P378 P403+P235 P501	H316 H320	No require
				P273 P391 P501		
Methyl Laurate	111-82-0	>2000	No data available	P210 P261 P273 P331 P301+P310 P501 P304 + P340 P302 + P352 P361 + P364 P305 + P351 + P338 P301 + P330 + P331	H400 H411	GHS09
Methyl linoleate	112-63-0	No data available	No data available		H225 H304 H315 H336 H410	No require
Methyl Myristate	124-10-7	>2000	No data available		No require	No require

Methyl Oleate	112-62-9	>2000	>5000**	P312	No require	No require
				P304 + P340		
				P304 + P341		
				P302 + P352		
				P305 + P351 + P338		
Methyl Palmitate	112-39-0	>2000	No data available	P301 + P330 + P331	No require	No require
				P312		
				P304 + P340		
				P302 + P352		
				P361 + P364		
Methyl Ricinoleate	141-24-2	No data available	No data available	P305 + P351 + P338	No require	No require
				P301 + P310		
				P331		
				P304 + P341		
				P405		
Methyl Soyate	67784-80-9	>2000	>5000**	P304 + P340	None listed	None listed
				P304 + P341		
				P302 + P352		
				P305 + P351 + P338		
				P301 + P330 + P331		
Methyl Stearate (C18)	112-61-8	>2000	No data available	P312	No require	No require
				P305 + P351 + P338		
				P302 + P352		
				P301 + P330 + P331		
				P304 + P340		
Methylal (SOLVAGREE N® ≥99,9 % synthesis)	109-87-5	6423	>5000**	P312	H225	GHS02
				P314		
				P304 + P340		
				P304 + P341		
				P301 + P310		
Propylal	505-84-0	>2000	not classified	P301 + P330	H226 H412	GHS02
				P302 + P352		
				P305 + P351 + P338		
				P320		
				P315		
Propylene Carbonate	108-32-7	No data available	>2000**	P210	H319	GHS07
				P280		
				P303+P361+P353		
				P403+P235		
				P210		
Propylene Glycol	57-55-6	>22000	>2000**	P280	No require	No require
				P303+P361+P353		
				P403+P235		
				P264		
				P305+P351+P338		
Solketal (2,2- Dimethyl-1,3-	100-79-8	7000	>2000	P337+P313	H227 H319	GHS07
				No require		
				P210		
				P264		
				P280		

dioxolane-4-methanol)				P305+P351+P338		
				P370+P378		
				P403+P235		
				P501		
				P210		
				P233		
Tetrahydropyran	142-68-7	No data available	No data available	P241	H225	GHS02
				P242		
				P243		
Triacetin	102-76-1	>2000	No data available	No require	No require	No require
				P210	H226	
				P273	H315	GHS09
				P280	H317	GHS07
α -Pinene	80-56-8	3700	No data available	P301+P310	H304	GHS02
				P303+P361+P353	H400	GHS08
				P331	H410	
				P264		
				P280		
γ -Valerolactone	108-29-2	9249	>2102**	P302+P352	H315	GHS07
				P305+P351+P338	H319	
				P332+P313		
				P337+P313		
				P210		
				P233		
Ethyl Acetate	141-78-6	5620	>20000**	P240	H225	GHS07
				P241	H319	GHS02
				P242	H336	
				P305+P351+P338		
				P260		
				P264		
Ethylene glycol	107-21-1	500,1	>3500*	P270	H302	GHS07
				P301+P312	H373	GHS08
				P314		
				P501		

1. * Mouse

2. ** Rabbit

3. ***Guinea pig

4. °Value found in ECHA website: LD50 Oral (rat) = 1.187–2.769 mg/Kg; LD50 Dermal (rat)= 15.800 mg/Kg

Table S4. Matrix of RED (Relative Energy Difference) values among all Cremonesi's mixtures. L = Ligroin, A = Acetone, E = Ethanol.

L	L A1	L A2	L A3	L A4	L A5	L A6	L A7	L A8	L A9	A	LE 1	LE 2	LE 3	LE 4	LE 5	LE 6	LE 7	LE 8	LE 9	E	A E1	A E2	A E3
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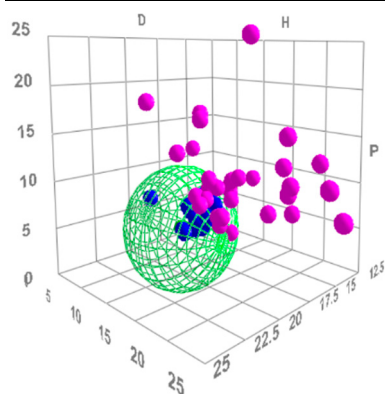
L	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	0.43	0.85	1.28	1.70	2.13	2.56	3.00	3.43	3.86	4.29	2.39	2.81	3.24
LA1	0.25	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	0.25	0.65	1.07	1.50	1.92	2.35	2.77	3.20	3.63	4.06	2.16	2.58	3.00
LA2	0.50	0.25	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	0.50	0.90	1.33	1.75	2.17	2.60	3.03	3.46	3.89	1.99	2.41	2.83	3.25
LA3	0.75	0.50	0.25	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	0.75	1.15	1.58	2.00	2.42	2.85	3.28	3.71	4.14	1.77	2.19	2.61	3.03
LA4	1.00	0.75	0.50	0.25	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.00	1.40	1.83	2.25	2.68	3.11	3.54	3.97	4.40	1.55	1.97	2.39	2.81
LA5	1.25	1.00	0.75	0.50	0.25	0.00	0.25	0.50	0.75	1.00	1.25	1.25	1.65	2.08	2.50	2.92	3.35	3.78	4.21	4.64	1.33	1.75	2.17	2.59
LA6	1.50	1.25	1.00	0.75	0.50	0.25	0.00	0.25	0.50	0.75	1.00	1.50	1.90	2.33	2.75	3.17	3.60	4.03	4.46	4.89	1.11	1.53	1.95	2.37
LA7	1.75	1.50	1.25	1.00	0.75	0.50	0.25	0.00	0.25	0.50	0.75	1.75	2.15	2.58	3.00	3.42	3.85	4.28	4.71	5.14	1.00	1.42	1.84	2.26
LA8	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	0.00	0.25	0.50	2.00	2.40	2.83	3.25	3.68	4.11	4.54	4.97	5.40	0.99	1.41	1.83	2.25
LA9	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	0.00	0.25	2.25	2.65	3.08	3.50	3.92	4.35	4.78	5.21	5.64	0.99	1.41	1.83	2.25
A	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	0.00	2.50	2.90	3.33	3.75	4.17	4.60	5.03	5.46	5.89	1.00	1.42	1.84	2.26
LE1	0.43	0.25	0.25	0.43	0.65	0.90	1.15	1.40	1.65	1.90	2.15	0.43	0.85	1.28	1.70	2.13	2.56	3.00	3.43	3.86	2.00	2.42	2.84	3.26
LE2	0.85	0.65	0.50	0.43	0.50	0.65	0.90	1.15	1.40	1.65	1.90	0.85	1.28	1.70	2.13	2.56	3.00	3.43	3.86	4.29	1.66	2.08	2.50	2.92
LE3	1.28	1.00	0.85	0.75	0.65	0.65	0.75	0.90	1.15	1.40	1.65	1.28	1.70	2.13	2.56	3.00	3.43	3.86	4.29	4.71	1.33	1.75	2.17	2.59
LE4	1.70	1.50	1.33	1.15	1.00	0.90	0.90	0.90	1.00	1.25	1.50	1.70	2.13	2.56	3.00	3.43	3.86	4.29	4.71	5.14	1.11	1.53	1.95	2.37
LE5	2.13	1.90	1.75	1.58	1.42	1.25	1.11	1.11	1.11	1.25	1.50	2.13	2.56	3.00	3.43	3.86	4.29	4.71	5.14	5.57	1.00	1.42	1.84	2.26
LE6	2.56	2.33	2.17	1.99	1.77	1.65	1.50	1.40	1.33	1.33	1.50	2.56	2.99	3.42	3.85	4.28	4.71	5.14	5.57	6.00	1.11	1.53	1.95	2.37
LE7	2.99	2.77	2.60	2.42	2.25	2.08	1.83	1.75	1.68	1.68	1.83	2.99	3.42	3.85	4.28	4.71	5.14	5.57	6.00	6.43	1.33	1.75	2.17	2.59
LE8	3.42	3.20	2.99	2.83	2.61	2.42	2.25	2.17	2.10	2.10	2.25	3.42	3.85	4.28	4.71	5.14	5.57	6.00	6.43	6.86	1.66	2.08	2.50	2.92
LE9	3.86	3.63	3.46	3.28	3.03	2.81	2.61	2.50	2.43	2.43	2.50	3.86	4.29	4.71	5.14	5.57	6.00	6.43	6.86	7.29	2.00	2.42	2.84	3.26
E	4.29	4.06	3.89	3.71	3.54	3.37	3.20	3.03	2.87	2.87	2.87	4.29	4.71	5.14	5.57	6.00	6.43	6.86	7.29	7.72	2.39	2.81	3.24	3.66
AE1	2.39	2.21	1.99	1.77	1.55	1.33	1.11	1.00	0.99	0.99	1.11	2.39	2.82	3.25	3.68	4.11	4.54	4.97	5.40	5.83	0.00	0.42	0.84	1.26
AE2	2.81	2.66	2.33	2.19	1.99	1.83	1.66	1.55	1.48	1.48	1.55	2.81	3.24	3.68	4.11	4.54	4.97	5.40	5.83	6.26	0.66	0.00	0.42	0.84
AE3	3.24	3.11	2.99	2.77	2.55	2.33	2.20	2.00	1.99	1.99	2.00	3.24	3.68	4.11	4.54	4.97	5.40	5.83	6.26	6.69	1.26	0.66	0.00	0.42

Table S5. Matrix RED of the optimized set of Cremonesi's mixtures.

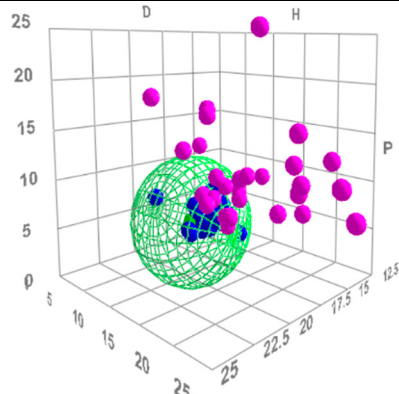
	L10 0A0	L80 A20	L60 A40	L40 A60	L20 A80	L0 A10 0	A80 E20	A60 E40	A40 E60	A20 E80	A0 E10 0	L60A 20E20	L40A 40E20	L40A 20E40	L20A 40E40
L100 A0	0.00	0.88	1.05	1.12	1.18	1.25	1.22	1.28	1.35	1.40	1.45	1.32	1.38	1.42	1.48
L80A 20	0.88	0.00	0.90	1.08	1.15	1.22	1.20	1.25	1.32	1.38	1.42	1.30	1.35	1.40	1.45
L60A 40	1.05	0.90	0.00	0.88	1.12	1.20	1.18	1.22	1.28	1.35	1.38	1.28	1.32	1.38	1.42
L40A 60	1.12	1.08	0.88	0.00	0.90	1.18	1.15	1.20	1.25	1.32	1.35	1.25	1.28	1.35	1.38
L20A 80	1.18	1.15	1.12	0.90	0.00	0.88	1.10	1.18	1.22	1.28	1.32	1.22	1.25	1.30	1.35
L0A1 00	1.25	1.22	1.20	1.18	0.88	0.00	1.08	1.12	1.18	1.22	1.28	1.20	1.22	1.28	1.30
A80E 20	1.22	1.20	1.18	1.15	1.10	1.08	0.00	0.88	0.90	1.12	1.20	1.15	1.20	1.25	1.28
A60E 40	1.28	1.25	1.22	1.20	1.18	1.12	0.88	0.00	0.90	1.08	1.15	1.12	1.18	1.22	1.25
A40E 60	1.35	1.32	1.28	1.25	1.22	1.18	0.90	0.90	0.00	0.88	1.12	1.10	1.15	1.18	1.22
A20E 80	1.40	1.38	1.35	1.32	1.28	1.22	1.12	1.08	0.88	0.00	0.90	1.08	1.10	1.12	1.15
A0E1 00	1.45	1.42	1.38	1.35	1.32	1.28	1.20	1.15	1.12	0.90	0.00	1.05	1.08	1.10	1.12
L60A 20E20	1.32	1.30	1.28	1.25	1.22	1.20	1.15	1.12	1.10	1.08	1.05	0.00	0.88	0.90	0.92
L40A 40E20	1.38	1.35	1.32	1.28	1.25	1.22	1.20	1.18	1.15	1.10	1.08	0.88	0.00	0.90	0.92
L40A 20E40	1.42	1.40	1.38	1.35	1.30	1.28	1.25	1.22	1.18	1.12	1.10	0.90	0.90	0.00	0.88
L20A 40E40	1.48	1.45	1.42	1.38	1.35	1.30	1.28	1.25	1.22	1.15	1.12	0.92	0.92	0.88	0.00

Table S6. Compatibility between green solvents and Cremonesi mixtures in Hansen space. The blue spheres represent solvent with good compatibility while the pink ones represent the solvent less compatible. The green sphere represents the solubility area ($RED < 1$) and the center of the green sphere the Cremonesi mixture to which the RED was calculated.

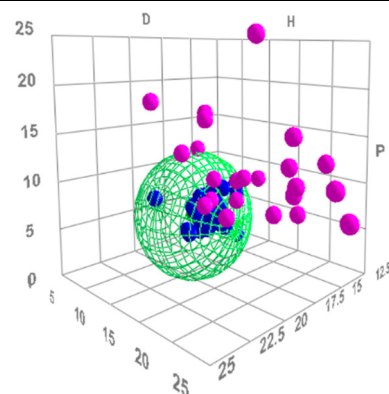
LA1	LA2	LA3
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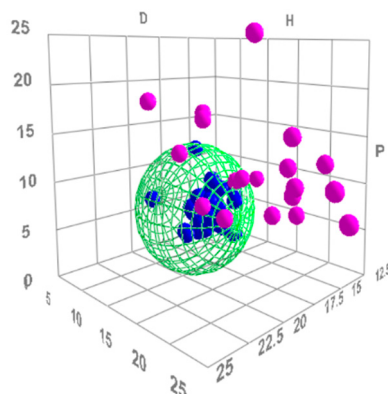
LA4



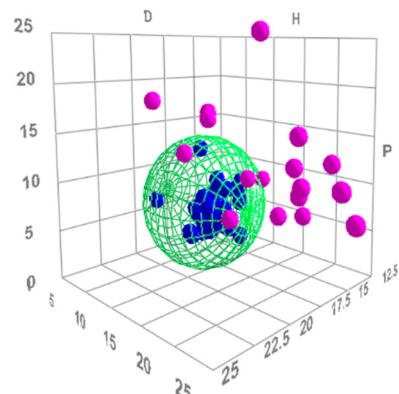
LA5



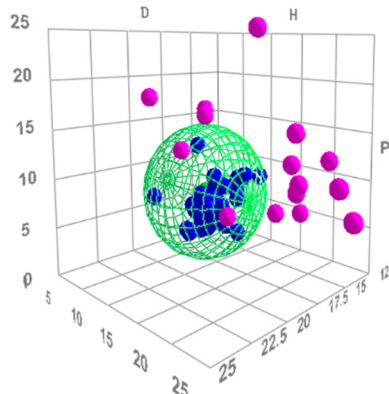
LA6



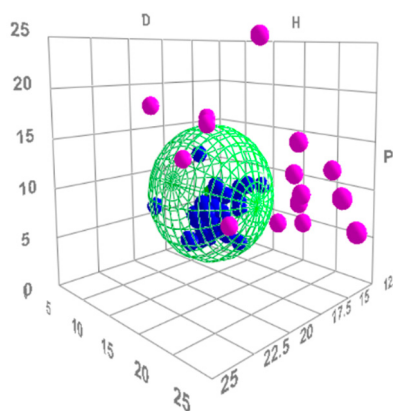
LA7



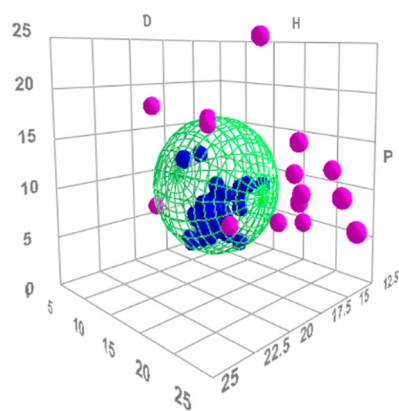
LA8



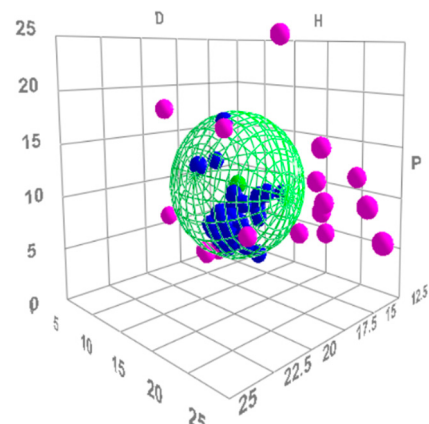
LA9



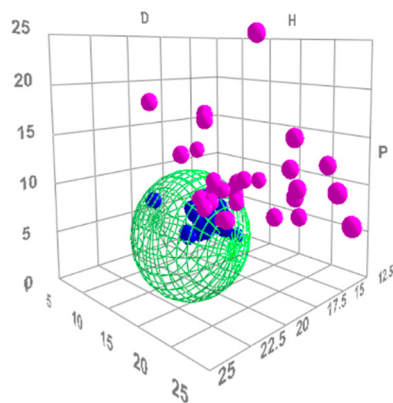
LE1



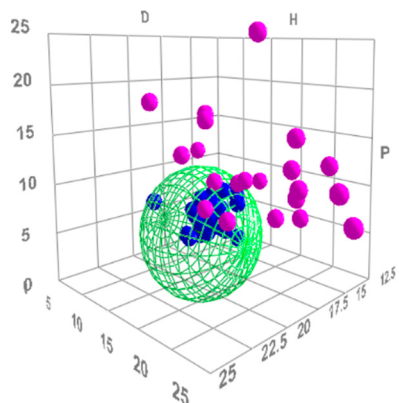
LE2



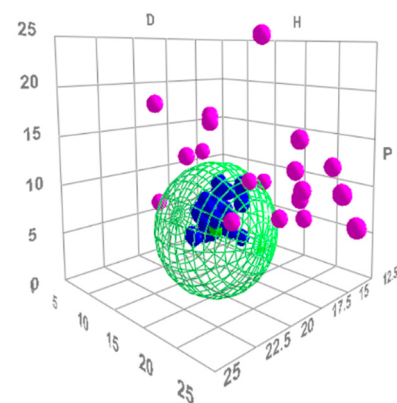
LE3



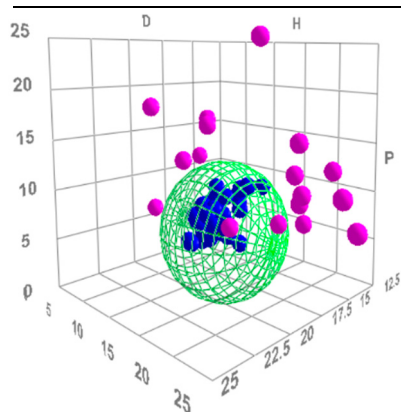
LE4



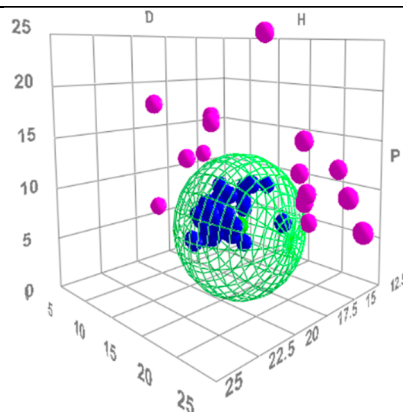
LE5



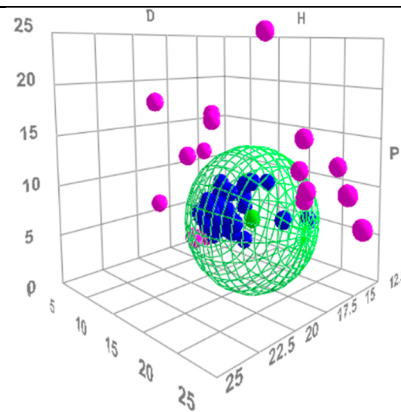
LE6



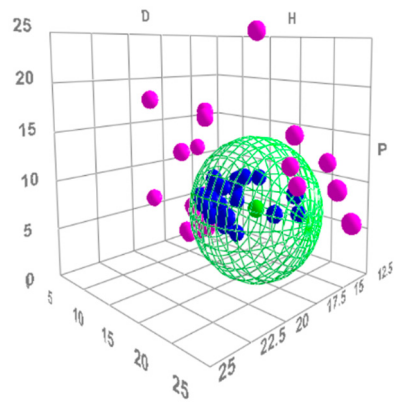
LE7



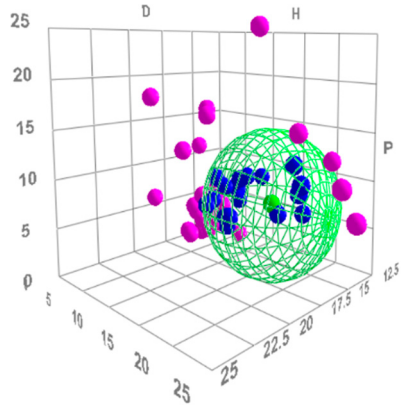
LE8



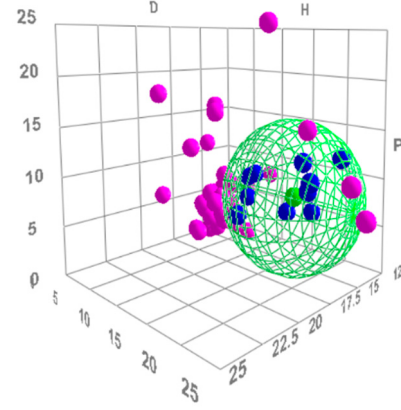
LE9



AE1



AE2



AE3

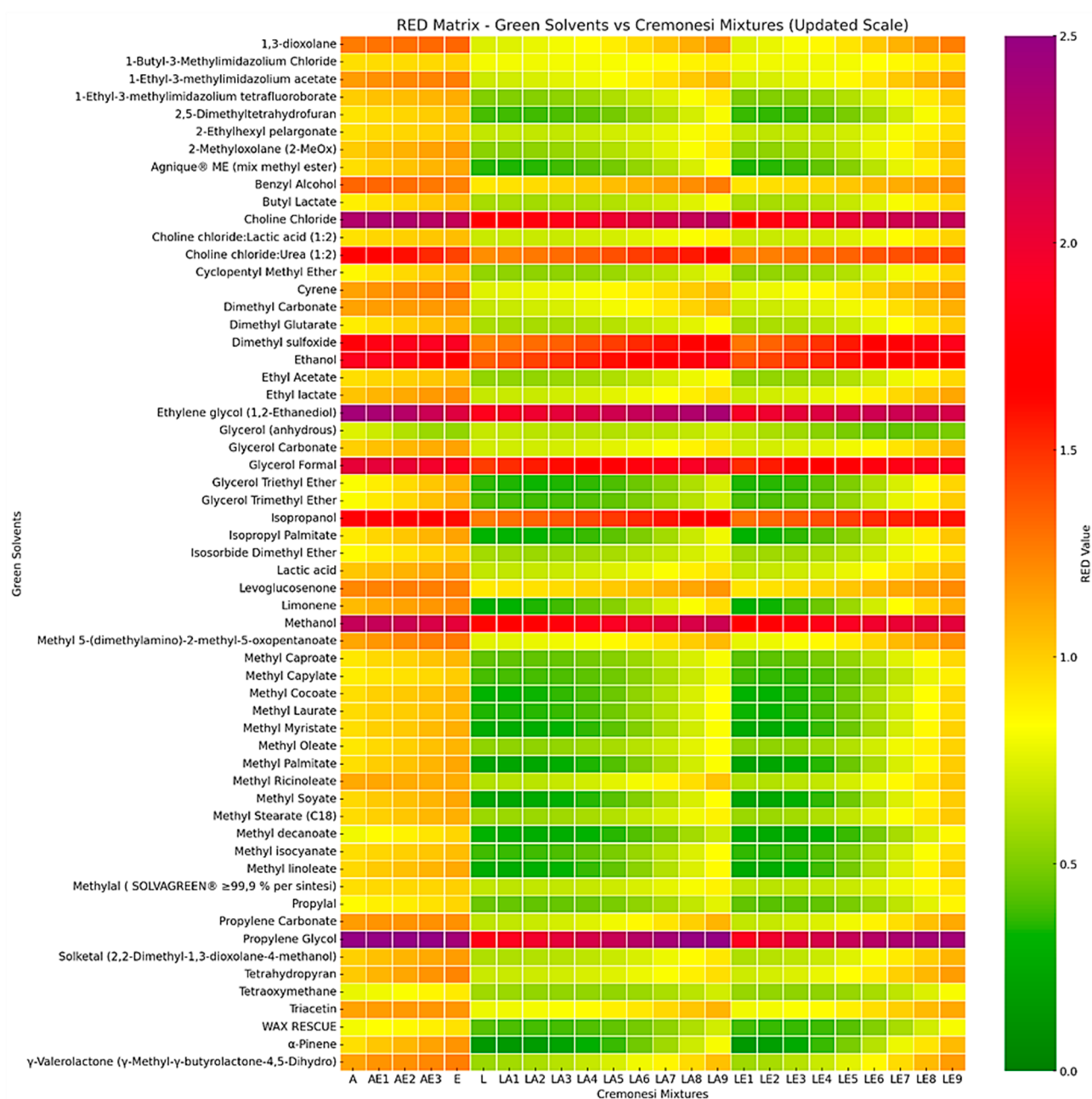


Figure S1. Red matrix solvent green vs. Cremonesi's mixture.