

Supplemental data (for inclusion in online publication only)

Table S1. Activation energies, pre-exponential factors and mass loss fractions over each regime at 10°C/min pyrolysis for OMW samples

Sample	Particle Size Range (µm)	Mass Loss Regime 1					Mass Loss Regime 2					Mass Loss Regime 3				
		Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss	Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss	Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss
Raw 10°C/min Pyrolysis	125-300	470.7	560.1	74.0	7.33E+04	0.31	579.8	607.8	87.7 ±	8.89E+05	0.38	639.0	737.9	7.7 ±	3.93E-02	0.22
		470.7	560.1	74.2	7.69E+04	0.30	579.8	607.8	87.8 ±	9.00E+05	0.38	639.0	737.8	7.3 ±	3.65E-02	0.22
		470.8	560.1	75.4	9.87E+04	0.30	579.8	607.8	87.4 ±	8.35E+05	0.38	639.1	737.9	7.5 ±	2.17E-02	0.22
	125-300 Avg	470.7 ± 0.07	560.1 ± 0.03	74.5 ± 0.7	8.30E+04 ± 1.38E+04	0.30	579.8 ± 0.03	607.8 ± 1.0	87.6 ± 0.2	8.75E+05 ± 3.49E+04	0.38	639.0 ± 0.03	737.9 ± 0.04	7.5 ± 0.2	3.15E-02 ± 9.46E-03	0.22
	300-500	470.7	560.1	69.6	2.72E+04	0.30	579.8	600.6	87.3 ±	7.85E+05	0.33	639.0	737.8	13.1 ±	1.10E-01	0.27
		470.8	560.1	68.9	2.32E+04	0.30	579.8	600.6	85.2 ±	5.15E+05	0.33	639.0	737.8	9.6 ±	5.67E-02	0.27
		470.7	560.1	68.2	1.99E+04	0.30	579.8	600.6	83.4 ±	3.55E+05	0.33	639.0	737.7	12.3 ±	9.35E-02	0.27
	300-500 Avg	470.7 ± 0.05	560.1 ± 0.01	68.9 ± 0.7	2.34E+04 ± 3.64E+03	0.30	579.8 ± 0.03	600.6 ± 2.3	85.3 ± 1.9	5.52E+05 ± 2.17E+05	0.33	639.0 ± 0.0	737.8 ± 0.1	11.6 ± 1.9	8.35E-02 ± 2.72E-02	0.27
	SCFE 10°C/min Pyrolysis	470.8	560.1	58.5	2.27E+03	0.30	576.4	596.9	80.8 ±	1.03E+05	0.33	639.0	737.8	3.0 ±	1.79E-02	0.27
		470.8	560.1	59.5	7.36E+03	0.30	576.4	596.9	80.9 ±	6.10E+04	0.34	639.0	737.8	2.8 ±	1.35E-02	0.27
		470.7	560.0	58.3	2.19E+03	0.30	576.3	596.8	82.5 ±	3.25E+05	0.33	638.9	737.8	4.3 ±	2.29E-02	0.27
SCFE 10°C/min Pyrolysis	125-300 Avg	470.8 ± 0.05	560.1 ± 0.1	58.8 ± 0.6	3.94E+03 ± 2.96E+03	0.30	576.4 ± 0.1	596.9 ± 0.04	81.4 ± 1.0	1.63E+05 ± 1.42E+05	0.33	639.0 ± 0.04	737.8 ± 0.02	3.4 ± 0.8	1.81E-02 ± 4.73E-03	0.27
	300-500	470.7	560.0	58.5	2.10E+03	0.28	576.3	596.8	72.8 ±	3.86E+04	0.32	639.0	737.8	14.1 ±	1.47E-01	0.31
		470.8	560.1	60.7	3.46E+03	0.28	576.4	596.9	71.8 ±	3.16E+04	0.32	639.0	737.9	12.5 ±	1.09E-01	0.31
		470.7	560.0	62.1	4.63E+03	0.28	576.4	596.9	73.7 ±	4.57E+04	0.32	639.0	737.8	14.7 ±	1.60E-01	0.32
	300-500 Avg	470.8 ± 0.05	560.0 ± 0.03	60.4 ± 1.8	3.40E+03 ± 1.27E+03	0.28	576.4 ± 0.03	596.9 ± 0.03	72.8 ± 1.0	3.86E+04 ± 7.07E+03	0.32	639.0 ± 0.0	737.8 ± 0.03	13.8 ± 1.1	1.39E-01 ± 2.68E-02	0.31
	SCFE+EtOH 10°C/min Pyrolysis	470.6	559.9	63.7	6.99E+03	0.29	576.2	596.7	80.4 ±	2.02E+05	0.33	638.8	737.8	11.3 ±	8.37E-02	0.29
		470.5	559.9	62.9	5.74E+03	0.28	576.2	596.7	81.2 ±	2.33E+05	0.33	638.9	737.8	16.2 ±	2.09E-01	0.30
		470.6	559.9	64.8	8.92E+03	0.29	576.2	596.7	80.7 ±	2.20E+05	0.34	638.9	737.9	12.2 ±	1.01E-01	0.29
	125-300 Avg	470.6 ± 0.06	559.9 ± 0.02	63.8 ± 0.9	7.22E+03 ± 1.60E+03	0.28	576.2 ± 0.02	596.7 ± 0.02	80.8 ± 0.4	2.18E+05 ± 1.54E+04	0.33	638.9 ± 0.03	737.8 ± 0.1	13.3 ± 2.6	1.31E-01 ± 6.80E-02	0.29
	300-500	470.7	560.0	64.7	7.71E+03	0.26	576.3	596.8	71.6 ±	2.80E+04	0.32	639.0	738.0	30.8 ±	3.03E+00	0.31
		470.7	560.0	63.2	5.65E+03	0.26	576.3	596.8	72.3 ±	3.19E+04	0.32	639.0	737.9	31.1 ±	3.22E+00	0.31
	300-500 Avg	470.7 ± 0.03	560.0 ± 0.02	64.2 ± 0.9	7.18E+03 ± 1.35E+03	0.26	576.3 ± 0.02	596.8 ± 0.02	72.3 ± 0.7	3.28E+04 ± 5.34E+03	0.32	639.0 ± 0.01	738.0 ± 0.02	28.9 ± 3.6	2.42E+00 ± 1.23E+00	0.31

Table S2. Activation energies, pre-exponential factors and mass loss fractions over each regime at 100°C/min pyrolysis for OMW samples

Sample	Particle Size Range (µm)	Mass Loss Regime 1					Mass Loss Regime 2					Mass Loss Regime 3				
		Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss	Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss	Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss
Raw 100°C/min Pyrolysis	125-300	476.1	575.5	73.0	2.86E+04	0.27	603.6	628.1	73.0	2.46E+04	0.38	682.8	731.5	15.5	1.37E-01	0.17
		476.6	576.0	71.1	1.82E+04	0.26	604.0	628.4	74.1	2.86E+04	0.38	683.3	732.2	14.5	1.13E-01	0.18
		476.6	576.0	71.1	1.82E+04	0.27	604.0	628.5	76.1	4.30E+04	0.37	683.2	732.0	13.1	8.89E-02	0.18
	125-300 Avg	476.5 ± 0.3	575.8 ± 0.3	71.7 ± 1.1	2.17E+04 ± 5.98E+03	0.27	603.9 ± 0.2	628.3 ± 0.2	74.4 ± 1.6	3.21E+04 ± 9.71E+03	0.38	683.1 ± 0.3	731.9 ± 0.3	14.4 ± 1.2	1.13E-01 ± 2.39E-02	0.18
	300-500	476.8	576.3	71.6	2.03E+04	0.27	609.7	625.4	76.2	4.18E+04	0.32	683.7	725.9	21.2	3.83E-01	0.19
		476.8	576.4	72.6	2.51E+04	0.27	609.9	625.7	73.3	2.38E+04	0.32	684.0	726.2	21.8	4.25E-01	0.19
		476.6	576.0	70.5	1.58E+04	0.26	609.3	625.0	67.7	7.79E+03	0.32	683.2	725.3	23.9	6.13E-01	0.19
	300-500 Avg	476.7 ± 0.1	576.2 ± 0.2	71.5 ± 1.1	2.04E+04 ± 4.63E+03	0.26	609.6 ± 0.3	625.3 ± 0.3	72.4 ± 4.3	2.44E+04 ± 1.70E+04	0.32	683.6 ± 0.4	725.8 ± 0.5	22.3 ± 1.4	4.73E-01 ± 1.22E-01	0.19
	SCFE 100°C/min Pyrolysis	477.2	576.4	60.3	1.77E+03	0.27	604.4	628.7	67.0	7.04E+03	0.37	683.4	732.2	10.6	6.39E-02	0.19
		476.6	575.7	59.7	1.59E+03	0.27	603.5	627.8	66.5	6.50E+03	0.37	682.3	731.1	9.5	5.29E-02	0.19
		477.2	576.5	60.1	1.70E+03	0.27	604.4	628.7	68.3	9.14E+03	0.37	683.3	732.1	10.0	5.84E-02	0.19
SCFE+EtOH 100°C/min Pyrolysis	125-300 Avg	477.0 ± 0.3	576.2 ± 0.5	60.0 ± 0.3	1.69E+03 ± 9.32E+01	0.27	604.1 ± 0.5	628.4 ± 0.5	67.2 ± 0.9	7.56E+03 ± 1.39E+03	0.37	683.0 ± 0.6	731.8 ± 0.6	10.0 ± 0.6	5.84E-02 ± 5.53E-03	0.19
	300-500	487.0	575.8	57.7	9.34E+02	0.24	603.8	628.1	59.4	1.35E+03	0.35	682.7	731.5	25.7	1.01E+00	0.21
		487.9	576.9	57.9	1.01E+03	0.26	604.9	629.3	59.6	1.50E+03	0.35	684.0	732.9	24.3	7.71E-01	0.20
		487.1	576.0	57.5	9.16E+02	0.25	603.9	628.3	56.3	7.73E+02	0.35	683.0	731.8	23.5	6.91E-01	0.20
	300-500 Avg	487.4 ± 0.5	576.2 ± 0.6	57.7 ± 0.2	9.54E+02 ± 5.11E+01	0.25	604.2 ± 0.6	628.5 ± 0.7	58.4 ± 1.8	1.21E+03 ± 3.83E+02	0.35	683.2 ± 0.7	732.1 ± 0.7	24.5 ± 1.1	8.23E-01 ± 1.64E-01	0.20
	SCFE+EtOH 100°C/min Pyrolysis	476.5	575.5	59.9	1.54E+03	0.25	603.4	627.6	68.0	8.27E+03	0.37	682.3	731.2	15.7	1.60E-01	0.20
		476.9	576.0	59.9	1.65E+03	0.27	604.0	628.3	64.8	4.77E+03	0.37	683.1	732.0	17.1	2.00E-01	0.19
		476.4	575.2	60.5	1.77E+03	0.25	603.0	627.3	65.6	5.27E+03	0.37	681.8	730.5	16.6	1.86E-01	0.20
	125-300 Avg	476.6 ± 0.2	575.6 ± 0.4	60.1 ± 0.3	1.66E+03 ± 1.16E+02	0.26	603.5 ± 0.5	627.7 ± 0.5	66.1 ± 1.6	6.10E+03 ± 1.89E+03	0.37	682.4 ± 0.7	731.2 ± 0.7	16.5 ± 0.7	1.82E-01 ± 2.01E-02	0.19
	300-500	477.5	576.7	60.1	1.47E+03	0.24	604.6	628.9	61.7	2.12E+03	0.35	683.7	732.6	26.4	1.10E+00	0.22
		476.7	575.6	60.2	1.48E+03	0.23	603.4	627.7	54.9	5.34E+02	0.34	682.3	731.2	33.1	3.56E+00	0.23
		477.1	576.2	60.5	1.65E+03	0.24	604.1	628.4	54.0	4.64E+02	0.35	683.0	731.9	31.9	2.92E+00	0.23
	300-500 Avg	477.1 ± 0.4	576.2 ± 0.6	60.3 ± 0.2	1.53E+03 ± 1.04E+02	0.24	604.0 ± 0.6	628.3 ± 0.6	56.9 ± 4.2	1.04E+03 ± 9.38E+02	0.35	683.0 ± 0.7	731.9 ± 0.7	30.4 ± 3.6	2.53E+00 ± 1.28E+00	0.23

Table S3. Activation energies, pre-exponential factors and mass loss fractions over each regime at 10°C/min oxidation for OMW samples

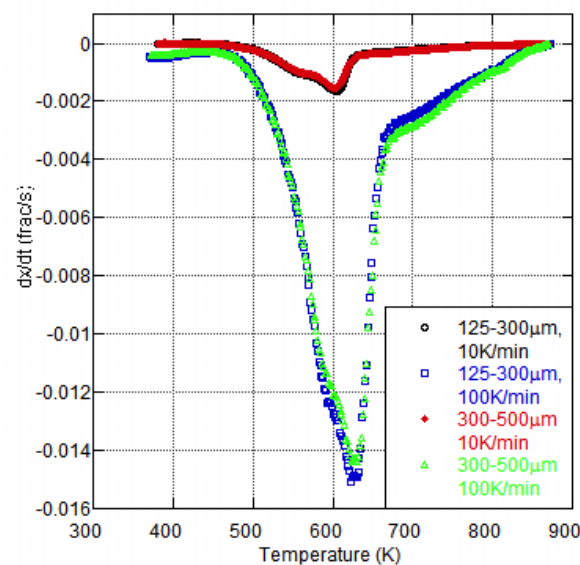
Sample	Particle Size Range (µm)	Mass Loss Regime 1					Mass Loss Regime 2					Mass Loss Regime 3				
		Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss	Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss	Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss
Raw 10°C/min Oxidation	125-300	505.0	544.8	139.3	2.78E+11	0.27	566.2	580.1	40.0	6.28E+01	0.33	641.3	680.5	147.0	7.90E+09	0.40
		505.0	545.2	137.8	1.88E+11	0.27	567.0	581.3	42.1	9.65E+01	0.33	642.0	679.5	141.4	2.98E+09	0.40
		505.1	545.1	137.6	1.88E+11	0.27	566.7	580.7	39.3	5.41E+01	0.34	641.7	681.0	135.1	9.50E+08	0.39
	125-300 Avg	505.0 ± 0.04	545.0 ± 0.2	138.2 ± 0.9	2.14E+11 ± 5.18E+10	0.27	566.6 ± 0.4	580.7 ± 0.6	40.5 ± 0.3	6.89E+01 ± 2.24E+01	0.33	641.7 ± 0.3	680.3 ± 0.8	141.2 ± 5.9	3.94E+09 ± 3.57E+09	0.40
	300-500	504.9	544.3	135.4	1.30E+11	0.30	565.3	578.8	16.8	6.07E-01	0.41	640.8	674.4	188.8	5.79E+13	0.29
		504.9	544.4	132.9	7.35E+10	0.30	565.5	579.1	15.4	4.49E-01	0.41	641.1	674.8	170.8	2.00E+12	0.30
		505.0	544.6	136.8	1.72E+11	0.29	565.8	579.5	20.8	1.39E+00	0.41	641.4	675.2	180.4	1.13E+13	0.30
	300-500 Avg	504.9 ± 0.04	544.4 ± 0.2	135.1 ± 2.0	1.18E+11 ± 4.94E+10	0.30	565.5 ± 0.3	579.1 ± 0.3	17.7 ± 2.0	7.24E-01 ± 5.04E-01	0.41	641.1 ± 0.3	674.8 ± 0.4	180.0 ± 9.0	2.37E+13 ± 3.00E+13	0.30
	SCFE 10°C/min Oxidation	505.5	545.5	125.1	1.11E+10	0.28	567.4	586.3	64.8	2.16E+01	0.37	640.5	673.8	150.4	9.46E+11	0.35
		505.4	545.2	123.5	7.44E+09	0.26	566.6	580.7	51.0	6.33E+02	0.33	641.6	679.0	163.5	3.19E+11	0.41
		505.4	544.9	124.4	9.09E+09	0.25	566.1	579.9	36.7	2.94E+01	0.33	641.3	677.1	166.7	2.91E+11	0.41
SCFE+EtOH 10°C/min Oxidation	125-300 Avg	505.4 ± 0.05	545.2 ± 0.3	124.3 ± 0.8	9.09E+09 ± 1.83E+09	0.26	566.7 ± 0.7	582.3 ± 3.5	50.8 ± 14.0	2.28E+02 ± 3.51E+02	0.35	641.1 ± 0.6	676.6 ± 2.6	160.2 ± 8.6	5.19E+11 ± 3.71E+11	0.39
	300-500	505.4	544.8	123.5	7.82E+09	0.27	565.8	579.5	29.1	6.96E+00	0.41	641.3	675.0	131.0	1.16E+09	0.32
		505.3	544.9	131.6	4.73E+10	0.27	566.2	580.0	27.5	4.95E+00	0.40	641.7	675.8	141.0	6.87E+09	0.33
		505.2	544.7	123.9	8.47E+09	0.27	565.8	579.6	30.9	1.01E+01	0.41	641.4	675.1	125.8	4.40E+08	0.33
	300-500 Avg	505.3 ± 0.1	544.8 ± 0.1	126.3 ± 4.6	1.46E+10 ± 2.26E+10	0.27	565.9 ± 0.2	579.7 ± 0.3	29.2 ± 1.7	7.03E+00 ± 2.58E+00	0.41	641.5 ± 0.2	675.3 ± 0.4	132.6 ± 7.7	2.82E+09 ± 3.53E+09	0.33
	125-300	505.4	545.8	134.5	1.07E+11	0.29	567.3	581.2	34.4	1.78E+01	0.32	642.2	681.2	155.7	3.76E+10	0.39
		505.3	545.5	137.1	2.06E+11	0.31	567.1	581.1	34.8	2.13E+01	0.33	642.1	681.2	160.9	1.13E+11	0.35
		505.4	545.4	137.9	2.81E+11	0.35	566.7	580.4	40.4	8.39E+01	0.38	641.9	675.4	163.4	4.67E+11	0.27
	125-300 Avg	505.4 ± 0.06	545.6 ± 0.2	136.5 ± 1.8	1.84E+11 ± 8.68E+10	0.32	567.0 ± 0.3	580.9 ± 0.4	36.5 ± 3.4	3.17E+01 ± 3.72E+01	0.34	642.0 ± 0.2	679.3 ± 3.3	160.0 ± 3.9	2.06E+11 ± 2.29E+11	0.34
	300-500	505.4	544.8	143.0	7.18E+11	0.30	565.8	579.3	18.1	7.63E-01	0.41	641.3	674.7	155.7	1.30E+11	0.29
		505.3	544.8	143.0	6.97E+11	0.29	565.9	579.4	14.6	3.61E-01	0.41	641.4	674.9	171.8	2.45E+12	0.30
		505.3	544.9	143.4	7.78E+11	0.30	566.0	579.6	16.9	5.77E-01	0.41	641.6	675.1	160.5	3.09E+11	0.29
	300-500 Avg	505.3 ± 0.04	544.8 ± 0.05	143.1 ± 0.3	7.30E+11 ± 4.20E+10	0.30	565.9 ± 0.09	579.4 ± 0.1	16.5 ± 1.8	5.42E-01 ± 2.02E-01	0.41	641.4 ± 0.1	674.9 ± 0.2	162.7 ± 8.3	9.63E+11 ± 1.29E+12	0.29

Table S4. Activation energies, pre-exponential factors and mass loss fractions over each regime at 100°C/min oxidation for OMW samples

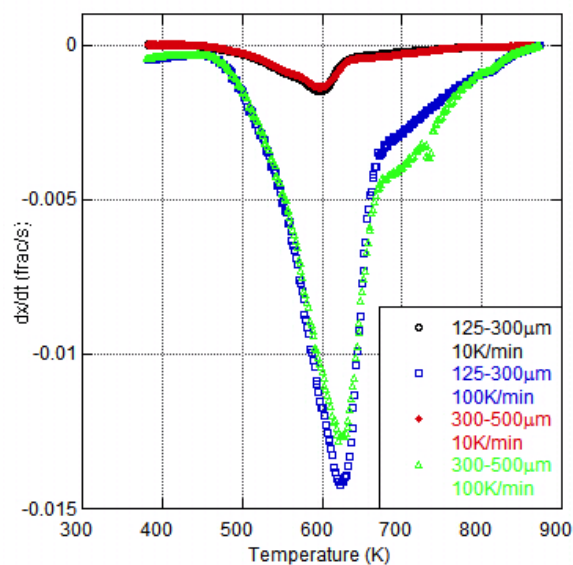
Sample	Particle Size Range (µm)	Mass Loss Regime 1					Mass Loss Regime 2					Mass Loss Regime 3				
		Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss	Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss	Onset Temperature (K)	Endset Temperature (K)	Activation Energy (kJ/mol)	Pre-exponential Factor (s ⁻¹)	Mass Fraction Loss
Raw 100°C/min Oxidation	125-300	529.2	562.9	170.9	6.40E+13	0.39	667.0	808.7	31.4 ±	1.30E+00	0.49	810.3	849.1	170.9	1.54E+09	0.08
		529.7	563.4	170.4	5.56E+13	0.39	667.0	808.6	46.5 ±	2.15E+01	0.53	810.2	844.7	188.1	3.21E+10	0.04
		530.1	563.9	172.3	8.64E+13	0.39	668.2	810.1	32.2 ±	1.46E+00	0.49	811.7	849.9	185.0	1.21E+10	0.08
	125-300 Avg	529.7 ± 0.4	529.7 ± 0.5	171.2 ± 1.0	6.87E+13 ± 1.59E+13	0.39	667.4 ± 0.7	809.1 ± 0.8	36.7 ± 8.5	8.10E+00 ± 1.16E+01	0.50	810.7 ± 0.8	847.9 ± 2.8	181.3 ± 9.1	1.52E+10 ± 1.55E+10	0.06
	300-500	529.4	562.7	143.4	1.05E+11	0.35	666.5	809.4	20.9 ±	1.70E-01	0.47	811.0	850.7	171.5	9.83E+08	0.08
		529.9	563.3	138.6	3.61E+10	0.35	666.6	809.4	18.1 ±	1.06E-01	0.47	811.1	850.6	163.8	2.96E+08	0.08
		530.5	563.9	135.7	1.85E+10	0.34	666.9	809.9	22.1 ±	2.23E-01	0.48	811.5	850.6	169.9	8.88E+08	0.09
	300-500 Avg	529.7 ± 0.5	529.7 ± 0.6	139.2 ± 3.9	5.33E+10 ± 4.59E+10	0.34	666.6 ± 0.2	809.6 ± 0.3	20.4 ± 2.1	1.67E-01 ± 5.84E-02	0.48	811.2 ± 0.3	850.6 ± 0.0	168.4 ± 4.0	7.22E+08 ± 3.72E+08	0.08
	SCFE 100°C/min Oxidation	530.9	564.5	139.2	5.90E+10	0.40	668.2	804.2	42.2 ±	2.04E+01	0.55	805.7	842.4	127.2	2.96E+07	0.01
		530.7	564.0	140.4	5.56E+13	0.37	666.0	803.2	46.5 ±	2.15E+01	0.58	804.8	842.0	120.7	1.23E+07	0.00
		530.1	563.6	136.3	3.02E+10	0.40	666.9	803.1	39.7 ±	1.16E+01	0.55	804.6	841.9	108.7	1.38E+06	0.01
SCFE+EtOH 100°C/min Oxidation	125-300 Avg	529.7 ± 0.4	529.7 ± 0.4	138.6 ± 2.1	1.86E+13 ± 3.21E+13	0.39	667.0 ± 1.1	803.5 ± 0.6	42.8 ± 3.4	1.78E+01 ± 5.45E+00	0.56	805.0 ± 0.6	842.1 ± 0.2	118.9 ± 9.4	1.44E+07 ± 1.42E+07	0.01
	300-500	530.5	564.0	141.5	7.96E+10	0.36	666.7	809.2	39.1 ±	7.10E+00	0.56	810.8	829.8	157.9	3.88E+07	0.04
		530.3	563.7	131.8	8.56E+09	0.34	665.8	808.8	31.7 ±	1.73E+00	0.55	810.4	830.6	142.5	3.46E+07	0.04
		530.3	563.7	140.5	5.28E+10	0.35	666.6	809.3	34.3 ±	3.94E+00	0.52	810.9	831.3	123.3	1.43E+06	0.04
	300-500 Avg	529.7 ± 0.1	529.7 ± 0.2	137.9 ± 5.3	4.70E+10 ± 3.59E+10	0.35	666.3 ± 0.5	809.1 ± 0.3	35.0 ± 3.7	4.26E+00 ± 2.70E+00	0.54	810.7 ± 0.3	830.5 ± 0.8	141.2 ± 17.3	2.49E+07 ± 2.05E+07	0.04
	125-300	530.5	564.1	152.6	9.89E+11	0.37	667.7	809.7	35.2 ±	2.66E+00	0.55	811.3	845.2	105.1	1.91E+05	0.01
		529.9	563.3	144.0	1.44E+11	0.36	666.0	807.2	31.1 ±	6.69E+00	0.60	808.5	842.9	107.1	5.08E+05	0.01
		530.7	564.1	145.7	2.10E+11	0.36	666.3	805.9	39.2 ±	3.68E+00	0.59	807.3	842.7	112.9	1.76E+06	0.01
	125-300 Avg	529.7 ± 0.4	529.7 ± 0.5	147.5 ± 4.6	4.48E+11 ± 4.70E+11	0.36	666.7 ± 0.9	807.6 ± 2.0	35.2 ± 4.1	4.34E+00 ± 2.09E+00	0.58	809.1 ± 2.1	843.6 ± 1.4	108.4 ± 4.1	8.20E+05 ± 8.30E+05	0.01
	300-500	530.4	563.7	140.1	4.32E+10	0.34	666.1	809.0	38.0 ±	3.94E+00	0.56	810.6	831.0	134.0	7.73E+06	0.04
		530.0	563.2	138.9	3.37E+10	0.34	665.6	808.3	38.3 ±	4.48E+00	0.55	810.0	830.4	140.2	2.00E+07	0.04
		530.2	563.5	133.9	9.74E+09	0.33	665.9	809.2	31.4 ±	1.25E+00	0.52	810.9	831.3	125.1	1.69E+06	0.04
	300-500 Avg	529.7 ± 0.2	529.7 ± 0.3	137.6 ± 3.3	2.89E+10 ± 1.73E+10	0.34	665.9 ± 0.28	808.9 ± 0.5	35.9 ± 3.9	3.22E+00 ± 1.73E+00	0.54	810.5 ± 0.5	830.9 ± 0.4	133.1 ± 7.6	9.80E+06 ± 9.32E+06	0.04



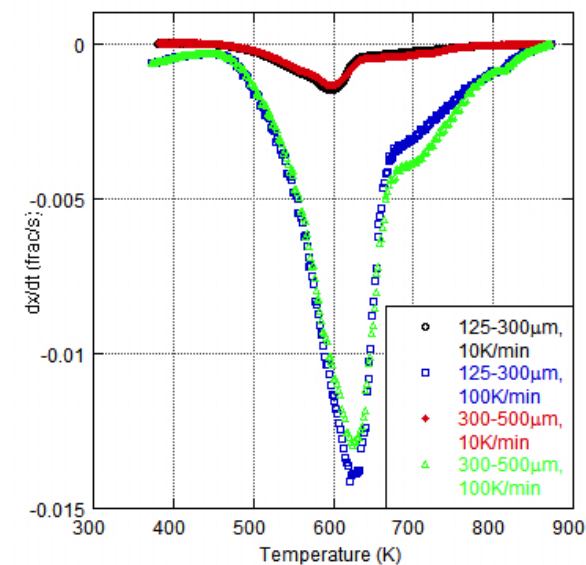
Figure S1. Supercritical CO₂ extraction pilot scale plant used for the experimental work:
SFE100 Series Plant – Separeco Srl, Italy



(a) Pyrolysis of Raw OMW samples

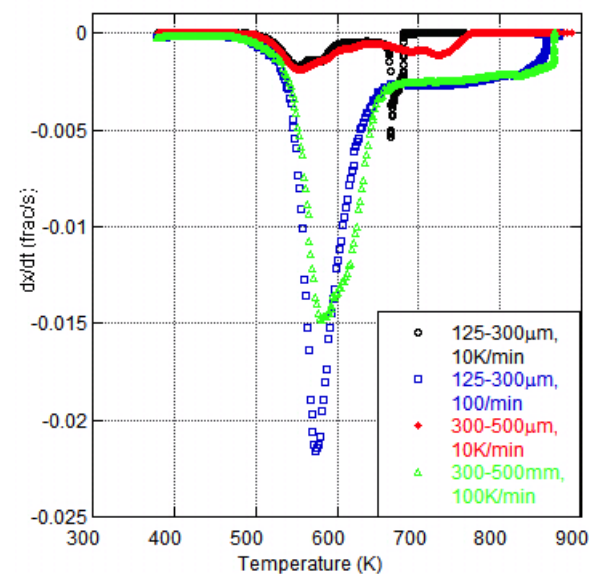


(b) Pyrolysis of SCO_2 samples

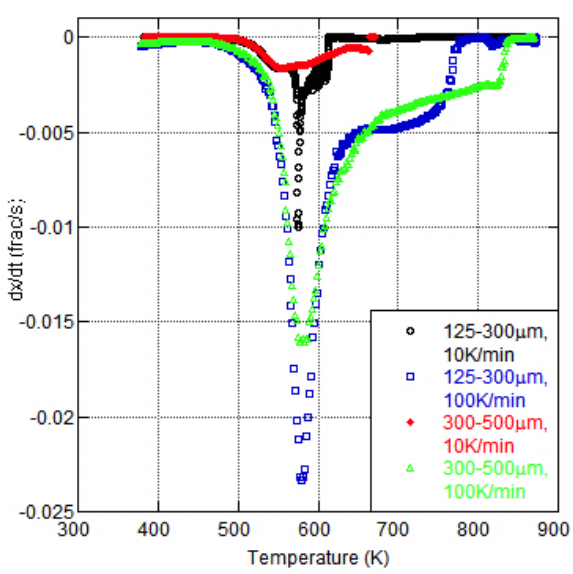


(c) Pyrolysis of SCO_2 +EtOH samples

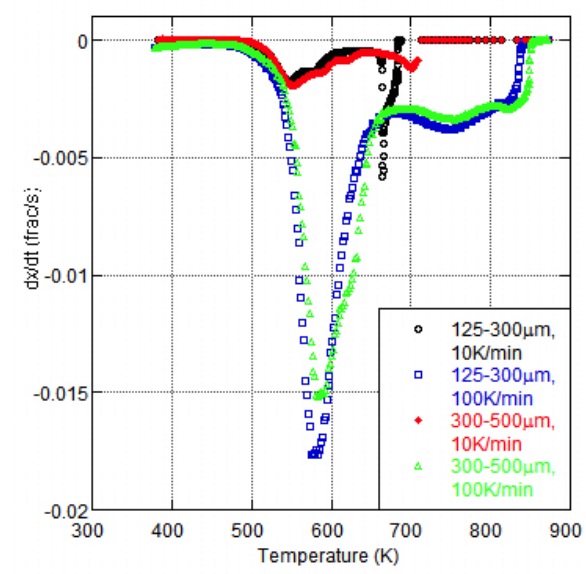
Figure S2. DTG curves for pyrolysis of olive mill waste samples (●) 125-300 μm , 10K/min; (□) 300-500 μm , 10K/min; (♦) 125-300 μm 100K/min; (Δ) 300-500 μm , 100 K/min



(a) Oxidation of Raw OMW samples



(b) Oxidation of SCO_2 samples



(c) Oxidation of SCO_2 +EtOH samples

Figure S3. DTG curves for oxidation of olive mill waste samples (●) 125-300 μm , 10K/min; (□) 300-500 μm , 10K/min; (♦) 125-300 μm 100K/min; (Δ) 300-500 μm , 100 K/min