Electronic Supplementary Material (ESI) for RSC Sustainability.

Clean Steel: Devulcanizing Rubber from Used Automotive Tires

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Electronic Supporting Information

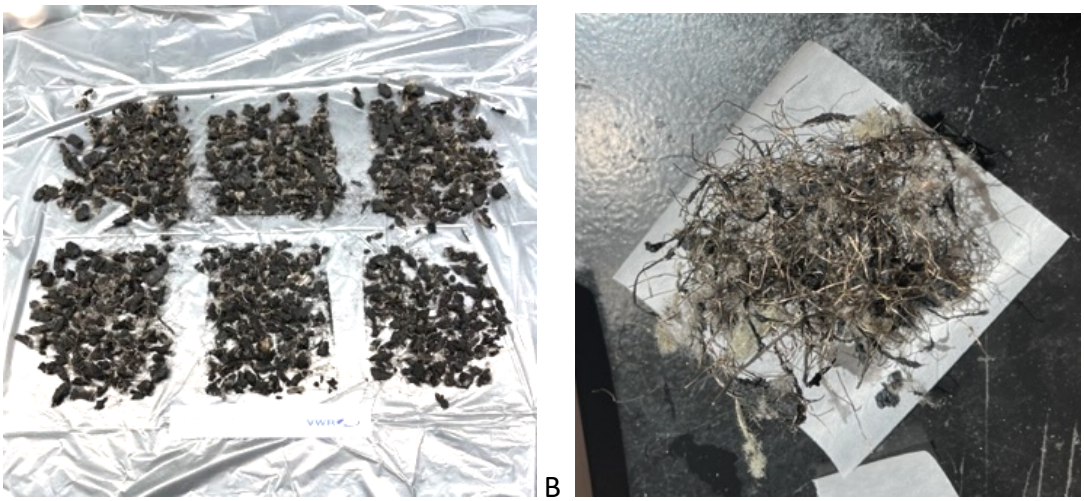

Figure S1. A) Sorting a single sample (~ 1 kg) received. It was spread as evenly as possible over a large surface area, separated into approximately 6 equal volumes. There was no average sample even within this one batch from one supplier. B) Batch C – a very fluff rich sample of steel/wire.

Figure S2. Magnetic separation of wires from raw rubber/wire mix – analogues separation was done at other stages of the cleaning process.

Table S1. Combined mass of 5 randomly selected rubber coated wires before and after combustion

Sample	Mass before combustion	Mass after combustion	Weight% rubber on sample
1	0.0895	0.0871	2.7
2	0.0738	0.0689	6.6
3	0.1054	0.097	8.0
4	0.1086	0.1038	4.4
5	0.1291	0.1128	12.6
6	0.1173	0.1109	5.5
7	0.0734	0.0713	2.9
8	0.1251	0.1053	15.8

[a] Samples 1-3 were measured on 1 day and samples 4-8 on another. All came from Batch Ai (Figure 3).

Table S2. Mass of rubber before and after swelling in toluene overnight.

Sample[a]	Mass before swelling	Mass after swelling	Weight% swelling
Tread			
1	1.8	5.318	195
2	3.041	8.051	166
3	1.668	4.648	179
			180 wt%
Sidewall			
1	1.129	2.611	131
2	3.249	8.201	152
3	1.332	3.214	141
			142 wt%

[a] The constitution of the tire components, included: truck tread isoprene/natural rubber; butadiene rubber; truck sidewall isobutene isoprene rubber.[1]

1. S. Zheng, M. Liao, Y. Chen and M. A. Brook, *Green Chem.*, 2020, **22**, 94-102.