Supporting Information

Environmental friendly crush-magnetic separation technology for recycling metal-plated plastics from end-of-life vehicles

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FIGURE S1. Liberation characteristics of MPP

FIGURE S2. The effect of steps on the separation efficiency

FIGURE S3. The average annual value of crushed ABS (2010-12-1 ~ 2011-11-30)

(a) Comminuted materials   (b) Coatings   (c) Plastics

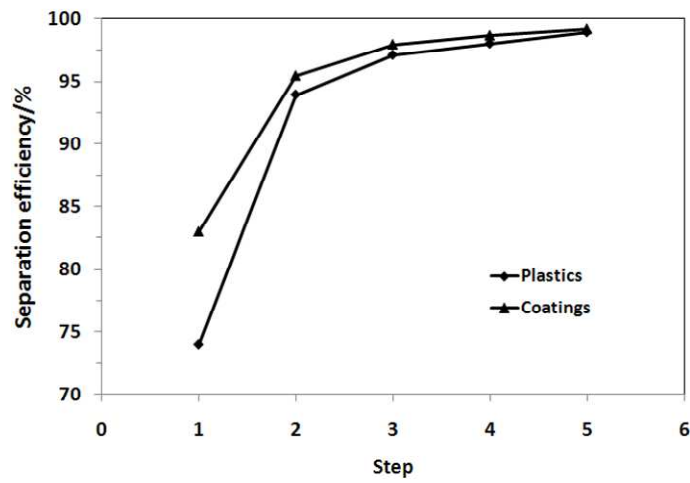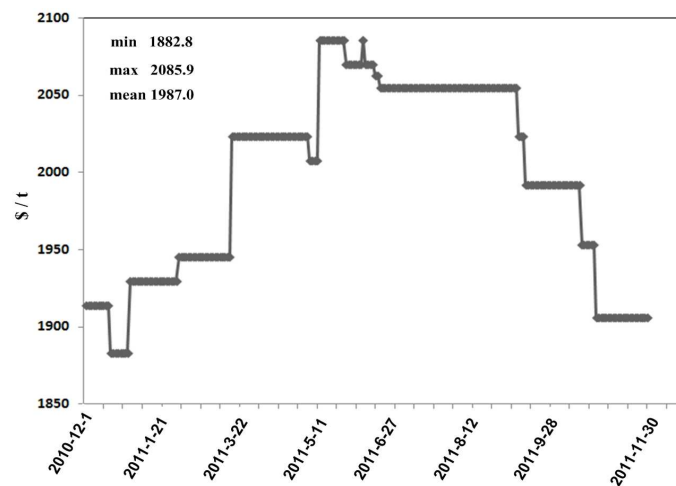**FIGURE S1. Liberation characteristics of MPP**

FIGURE S2. The effect of steps on separation efficiency

FIGURE S3. The average annual value of crushed ABS (2010-12-1 ~ 2011-11-30)
(All the value of each day comes from the website: http://www.recyclechina.com/)

Profit Calculation

Nomenclature

RE	the revenue
RE_p	the revenue of plastics
RE_c	the revenue of coatings
W	mass fraction
O	recycling rate
CO	cost
CO_e	cost of equipments
CO_s	cost of salary
CO_r	cost of raw materials
CO_p	cost of electric power
CO_d	cost of depreciation
CO_m	cost of maintenance
WH	working hours a year
PC	production capacity
PR	profit

(1) $RE_p = 1t \times W_p \times O_p \times \$1987.0/t = 1t \times 0.86 \times 0.79 \times \$1987.0/t = \$1350.0$

$RE_c = 1t \times W_c \times O_c \times \$2484.5/t = 1t \times 0.14 \times 0.82 \times \$2484.5/t = \$285.2$

$RE = RE_p + RE_c = \$1350.0 + \$285.2 = \$1635.2$

(2) $CO_s = \dfrac{\$1.62/h \times 4}{PC} = \dfrac{\$1.62/h \times 4}{0.6t/h} = \$10.8/t$

$CO_d = \dfrac{CO_e}{WH \times PC} = \dfrac{\$38819}{10 \times 250 \times 8h \times 0.6t/h} = 3.2\$/t$

$CO = CO_s + CO_r + CO_p + CO_d + CO_m = \$10.8 + \$1187.5 + \$15 + \$3.2 + \$0.8 = \$1217.3$

(3) $PR = RE - CO = \$1635.2 - \$1217.3 = \$417.9$