

PRADO; Eduardo Sant'Ana Petraconi¹, MIRANDA; Felipe de Souza², RITA; Cristian Cley Paterniani³, FILHO; Gilberto Petraconi⁴, BALDAN; Mauricio Ribeiro⁵

RESUMO

In this work applied coal tar pitch (CTP) as a potential kind of feedstock for the process direct of plasma thermal conversion of CTP to carbon black (CB). The plasma thermal conversion process of waste with high carbon content has been promising, not only for its ability to destroy and/or inertize has hazardous compounds but also for its potential quality of alternative generation of high added value by-products. For this, a lab-scale reactor coupled with the non-transferred arc plasma torch for CTP processing was established. The preliminary experiments indicated that for each region of the reactor, different materials are obtained in accordance with the enhanced development of the microstructure of the mesophase spheres. Considering the thermal conversion efficiency in relation to the carbon black of better characteristics is considered the coupling of the particle separation system (cyclone), which promises effective conversion of CTP to CB. The mapping of structural changes and reduced weight loss in processing and carbonization are beneficial for improving the yield of the process. The main methodologies applied to the characterization of the carbon black were X-ray diffraction (XRD); Fourier transforms infrared spectroscopy (FTIR); Raman spectroscopy allotropy and scanning electron microscopy (SEM-FEG). The results reported are of great significance for exploring potential high-value utilization of CTP.

PALAVRAS-CHAVE: Coal Tar Pitch, Thermal Plasma, Carbon Black

¹ Instituto Nacional de Pesquisas Espaciais - INPE, edu.petraconi@gmail.com

² Instituto Tecnológico de Aeronáutica - ITA, miranda.fs@gmail.com

³ Instituto Tecnológico de Aeronáutica - ITA, cpaterniani@yahoo.com.br

⁴ Instituto Tecnológico de Aeronáutica - ITA, petrafilho@gmail.com

⁵ Instituto Nacional de Pesquisas Espaciais - INPE, mrbaldan2@yahoo.com