

principalmente a Polianilina (PAni) e seus derivados. Neste trabalho, a PAni já sintetizada quimicamente na forma de PAni(HCl) e posterior desdopagem, obtendo-se a PAni(EB) em pó previamente caracterizado através de técnicas de análises convencionais, é que partimos para dopagem térmica reativa com dopantes funcionalizados e aditivos que podem conferir melhores propriedades físico-química à PAni dopada. A dopagem térmica das partículas de PAni foi realizada num reômetro de torque com ácido dodecilbenzenosulfônico [2:1] e também com adição de aditivos tais como o n-decano e o 4-dodecilfenol (ambos [1:1] em relação ao ácido). Blendas (5% w/w) de PAni (dopada e aditivadas)/matriz elastomérica (SBS) foram processadas no reômetro de torque e caracterizadas através de técnicas de análises térmicas (DSC, TGA), Infravermelho, microscopia óptica e difratometria de raio-x. Os resultados obtidos das caracterizações das blendas SBS/PAni dopada e SBS/PAni dopada e aditivadas sugerem, através da microscopia óptica, que o tamanho das partículas de PAni dopadas dentro das blendas, em média, são menores para blendas com a PAni dopada e aditivadas do que as partículas de PAni somente dopadas; os valores obtidos do processamento no reômetro, evidenciam que a melhor processabilidade está relacionada ao tamanhos destas partículas, sendo menores estes valores para as partículas nas blendas com PAni dopada e aditivadas do que as partículas nas blendas somente de PAni dopadas; O espectro de difração de raio-x sugere mudanças na morfologia destas partículas evidenciadas pelo aparecimento de picos cristalinos no difratograma das partículas. Tais resultados sugerem que o processo de dopagem com ácidos que induzem facilitar o processamento é adequado e melhoram ainda com certos aditivos, conferindo à PAni dopada uma morfologia adequada para processamento convencional.

#### ➔ PO 03 - PHOTOELECTRICAL PROPERTIES OF INORGANIC PHOSPHORS PREPARED BY THE POLYOL PROCESS

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Phosphors are luminescent materials employed in several technological applications such as fluorescent light bulbs, television and computer screens. These materials can absorb energy from such sources as ultraviolet light, X-rays or electrons then re-emit the energy as visible light. The field emission displays (FED) is a promising candidate for the most generation of information display and has been heavily supported by several industries and government in recent years due to their lower power

consumption, higher resolution and video capability, thinner and more portable package. In inorganic phosphors the luminescence efficiency is closely associated with the particle size of the crystals. Particle size and particle size distribution, however, also influence other important parameters such as contrast, modulation transfer function, coating density and packing density. Inorganic phosphorescent pigments are based on rare-earth triphosphors or sulfides and oxysulfides. The present work attempts to investigate the polyol process as obtention method of high-quality and ultra-fine inorganic phosphor copper-doped zinc sulfide (ZnS:Cu) powders. Thus, ZnS:Cu phosphor was prepared after dispersion of the precursors ( $ZnSO_4$ ,  $CuSO_4$ ) in a given volume of ethylene glycol. The suspension was stirred at 500 rpm and heated at rate of 6 °C/min up to a reaction temperature of 180°C for 2 h. After reaction, the finely divided powders were washed with ethanol several times and then dried at 60 °C in air. Identification of solid phases was performed by X-ray diffraction and the form and size of particles were determined by scanning electron microscopy (SEM, Phillips XL30). The luminescence behavior of the synthesized inorganic phosphor after excitation with a 120 W lamp was studied by using a cadmium sulfide photocell connected to an ohmmeter. The excited sample and photocell were placed in a dark box and the resistance was recorded as function of time. The analysis by SEM indicate that the obtained powder appear to be made up single, equiaxed, non-porous particles with a narrow size distribution in the micrometer size range. It was observed a maximum intensity wavelength at about 520 nm that increase slightly in wavelength as the emission decays. The phosphorescence decay fits a second-order equation, consistent with the recombination of relatively equal populations of holes and electrons (n-p), characteristic of non-agglomerated monodisperse particles. Photoconductivity was found to have a peak at 370 nm and to be characterized by long rise and decay times. The rate of decay was found to depend on the crystal environment.

#### PO 04 - THEORETICAL AND EXPERIMENTAL STUDIES OF THE RING-OPENING POLYMERIZATION BY USE OF IODINE AS CATALYST

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The iodine charge-transfer complexes (CTC) have gained synthetic and mechanistic significance due to their potential applications in organic synthesis and development of novel materials. Iodine shows a strong tendency to form charge transfer complexes even with weak donors. Such complexes have usually a large contribution from dative structures and frequently  $I_3^-$