

Characterization of metallic nanoresidues present in lubricating oil of a stationary internal combustion engine will Diesel cycle.

Rogério L. Barreto, Nilton F. O. Araujo, Mauro G. F Bezerra, Paulo.R. dos Santos, Luciene Batista da Silveira, Judes.G.Santos.

Laboratory of Nanomaterials and Nanobiomagnetism, Department of Physics, Federal University of Rondônia, Br 364 km 9.5 Rural Zone, Po Box 217, Porto Velho, Brazil

rogerio.barreto@ifro.edu.br

Abstract

This work presents the characterization of waste in nanometric scale [1;2], from wear of metal components suspended in lubricating oil in stationary internal combustion engines *Diesel cycle*. The characterization is important for the development of a mechanical magnetic system capable of performing the detection of metal nanoresidues at various concentrations and estimating the origin of the nanoresidues [3;4], and the results plan a maintenance and reducing costs in advance, analyzing it, propose more magnetic separators cheaper than those found in the market. A metallic and magnetic device is designed to nanoresidues collection as Figure 1 below. Optical measurements were performed with *UV-vis* and *NIR*, magnetic measurements and composition with technique – X ray dispersion energy and flowering dispersion.

References

[1]. Dee.S, Nano Research Facility, Disponível em < <https://www.linkedin.com/groups/Nano-Research-Facility-Washington-University-4268557/about> >. Acesso em 20 dez.2013.

[2]. SHIMADIZU, *Nanotecnologia* Disponível em

< <http://shimadzu.com.br/analitica/industrias/nanotecnologia/index.shtml> > Acesso em 20 dez.2013.

[3]. GONÇALVES, Valdeci Donizete. *Desenvolvimento de um sistema de análise de imagem para quantificação do tamanho e distribuição de partículas de desgaste*. 2009. 135 f. Tese (doutorado) - Universidade Estadual Paulista, Faculdade de Engenharia de Guaratinguetá, 2009. < <http://base.repositorio.unesp.br> >. Acesso em 12 jan.2015.

[4]. Óleo automotivos, Contagem de partículas Disponível em < www.br-petrobras.com.br >. Acesso em 12 jan.2015.

Figures.

Fig. 1

