苜蓿草粉对金属材料的磨料磨损试验 Experiment of Metal Materials Abrasive Wear for Alfalfa Powder

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关键词： 苜蓿草粉 金属材料 磨料磨损

摘 要： 选用与环模制粒工况相似的磨料磨损试验机，以苜蓿草粉为磨料对试样进行磨料磨损试验。通过磨后表面的硬度和化学成分测定、微观结构和表面形貌观察，考察了苜蓿草粉对4种金属材料的磨料磨损。结果表明，4种材料的体积磨损量由小到大依次为3Cr13、9SiCr、45号钢、HT200，试样的磨损表面发生了物理和化学变化。“软磨料磨损”中伴有 “硬磨料磨损”的特征，显微切削和应变疲劳剥落为其主要磨损形式。 The abrasive testing machine with operation process similar to the pelleting circular mold was used, taking the alfalfa grass powder as abrasive material. The influences of alfalfa powder on the abrasive properties of four kind of metal materials were examined, by measuring the rigidity and chemical components of the abraded surfaces and analyzing of the microstructures and surface morphologies of the abraded surfaces. It is shown that the abrasive quantities of four samples as below are orderly increased, 3Cr13, 9SiCr, 45# steel, and HT200, some physical and chemical changes take place on the abraded surfaces, and “the soft abrasive wear” is accompanied by “the hard abrasive wear” feature due to the micro-cutting and strain fatigue.

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