

THREE-BODY ABRASIVE WEAR OF FINE PEARLITE, NANO-STRUCTURED BAINITE AND MARTENSITE (IH 8328)

We are grateful for the comments (blue) and have responded as follows:

REVIEWER 1

1a) Mention what specific application in oil sand extraction these materials have.

We have in mind earth moving equipment, particularly the huge transportation vehicles. A sentence to this effect has been added to the first sentence of the last paragraph of the introduction.

1b) Figure 4 is not terribly helpful; profilometry or a cross-sectional micrograph would be more illustrative.

We feel that in contrast to cross-sectional images, the interference micrographs are able to show area features that indicate wear patterns. Cross sectional micrographs are in fact in Fig. 7.

REVIEWER 2

2a) It might be helpful to show in the schematic diagram of the test that the pivot point of the loading arm is centered on the contact point of the block against the wheel (with a dashed centerline). This is fairly key in recent versions of the test and was a point of discussion during the development of the standard, and that aspect was altered in the standard in recent years. Also, was the hardness of the rubber measured before and after testing? Of course that can affect the pressure of the sand stream against the specimen.

Agreed: Fig. 1 has been appropriately modified to show the pivot. Unfortunately, the hardness of the rubber was not measured after abrasion but the initial Durometer hardness was 60 on the 'A' scale (Table 3).

2b) Table 3 lists the test parameters, but I wonder if it reflects, for example, the actual hardness variation of the rubber wheel or variation in load. This suggestion is optional but seeing the actual variations or what the permissible variations in the test parameters might be helpful.

The experiments were set to a constant load via the counter-weight, but consequences of potential variations due to changes in rubber properties were not monitored. The variation in hardness of the sand as stated in Table 3, is directly quoted from the supplier.

2c) On page 8, Berkovich indenter is spelled wrong. Please check.

Corrected.

We hope that the paper is now considered suitable for publication and look forward to hearing from you.