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Journal Name:	Physical Science International Journal
Manuscript Number:	2014_PSIJ_12624
Title of the Manuscript:	Dry Sliding Wear Behaviour of Plasma Sprayed Fly Ash Added Red Mud Coatings
Type of the Article	Original Research Article

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	<p>Technical:</p> <p>14-15: "The wear test was performed for sliding distance of 94 to 942 m" Why different test lengths? In all the graphs, ~942 m is presented.</p> <p>19: "dense film at interface" What film and what interface?</p> <p>Table 5: Please include standard deviations for the porosity values. It is important to assess whether the differences between the samples are significant with respect to experimental scatter. The porosity values are presented down to 1/100 percent precision; considering the large variation in coating thickness in Fig. 4, it is doubtful that porosity would be homogeneous even down to percent...</p> <p>Why are there missing data for the 50/50 mixture? As these are significantly different from the others, they would be most interesting.</p> <p>Table 6: Please include standard deviations for the hardness values.</p> <p>185: "The three structurally different phases of red mud coatings bear three different ranges of hardness" They don't seem to be very different, and their ranges often overlap. Standard deviations would be helpful to assess this.</p> <p>188: "This result is attributed due to the increased content of alumina and silica in the composition of feed material forming alumino-silicate (mullite phase)" Was it detected, or is it just a guess? It may have been reported in [18], but it is just a dissertation, not broadly available.</p> <p>203: „cleaning with woolen cloth to avoid entrapment of wear debris“ Entrapment where?</p> <p>227: "This is one fact indicating the more hardness of denser surface of top layer than that of bulk layer." Was there any measurement performed to confirm this hypothesis?</p> <p>241: "This might be due to the improper particle to particle bonding and poor stacking to the substrate" Was there any observation to support this?</p>	<ol style="list-style-type: none"> 1. The coating specimens are slid up to 942 m. Starting from 0 minute to 30 minute. Total time is divided into 10 time intervals, each of 3 minutes. Which is expressed in sliding distance. 2. Due to addition of fly ash and with increase in power a dense film is formed and which reduces the wear rate due to sliding at the interfaces. 3. We have included the data for 90/10 and 80/20 composite mixture. This enables the detailed information without even producing 50/50 data. 4. We respect this point for suggestion, but it is not possible now. 5. We don't think so. 6. It was experimentally verified by [18]. 7. Cleaning is maintained by placing manually a woolen



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	<p>Any reason why the trend should change at 15 kW?</p> <p>Fig. 10: Why are the wear scars not covering the whole area? From the experiment description, it seemed that the whole coating area was in contact with the disk. Are these scars from some [particularly large debris (i.e. the rest of the area is worn as well, but with a less dramatic way)]?</p> <p>271: "assigning to a fatigue failure in the real sense" What exactly is meant by ,fatigue in the real sense'? Cyclic loading naturally occurs in this type of experiment.</p> <p>Fig. 8: Why are there these periodic variations? This looks like some artifact – was there any difference between even and odd measurement cycles?</p> <p>338: "Addition of fly ash with red mud reduces the wear rate by enhancing the coating mechanism" What is meant by ,enhancing the coating mechanism'?</p> <p>Grammar: General: Figure.# -> Figure #.</p> <p>The materials names are inconsistently used sometimes with capital, sometimes with lowercase letters. Please use only 'fly ash', 'red mud', etc, except in headings.</p> <p>The authors' initials in references are also used inconsistently regarding spaces and dots. Please use a consistent style.</p> <p>There is extensive use of 'stuffing' words that are not necessary (sometimes better suited for fiction, sometimes plain wrong, e.g. on line 91). In my opinion, brevity and simplicity are more suitable for a technical paper.</p> <p>Specific:</p> <p>9: involved -> used [or] employed</p> <p>10: being divulged on the basis of some -> are focused on</p> <p>13: with 10 -> of 10</p> <p>18: has been -> have been</p> <p>being visible -> increase was visible</p> <p>19: dense film at interface -> dense film at the interface</p> <p>24: the promising -> a promising</p> <p>25: some advanced -> advanced</p>	<p>cloth in the wear track path to avoid entrapment of wear debris in the pin and coating specimen interface.</p> <p>8. This is presumed and the statement is included, according to our results.</p> <p>9. This statement is supported by our experimental results and it is expressed hypothetically.</p> <p>10. You are true sir, these scars from some [particularly large debris (i.e. the rest of the area is worn as well, but with a less dramatic way)].</p> <p>11. Owing to continuous sliding of counter surfaces, wear debris formed which interlocks within sliding interface attributing pitting. Which contributes to fatigue (crack formation) in the real sense on the worn surface.</p> <p>12. Significant wear resistance being visible with the addition of fly ash due to increase in bond strength and dense film at interface. The statement has been rephrased as "Addition of fly ash with red mud reduces the wear rate by</p>
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	<p>29: The coatings - > Coatings considerable amount of hardness -> considerable hardness 30: resistive -> resistant 32: carbides of ceramic and tungsten -> tungsten and chromium carbides [carbide itself is a ceramic] 34: Technique -> technique being -> were 37: were being divulged in some literatures -> were presented in 38: In retrospection, literatures made available regarding the -> The 39: [5] -> was studied in [5] 41: being -> was 42: portrayed -> featured 43: anti-wear resistance -> wear resistance 46: demands -> demand 48: surface ramified as -> surface, such as 53: that, -> that 54: alternative wealth -> alternative 55: made -> are 56: basis of wear -> wear were being -> were 57: above -> the above 58: were being -> were 59: were being -> were 62: attempt in a direction -> attempt 63: of varying percentage of fly ash with pure red mud coating -> of pure red mud coating with varying percentage of fly ash 64: This articulated paper -> This paper 65: furthering -> extending some further -> more 70: mixture concomitants -> mixtures 71: was being -> were 72: considered -> used for the sake of comparison -> for comparison 75: substrate -> substrates</p>	<p>enhancing the coating property.</p> <p>13. All Grammar has been checked double time and revised accordingly.</p> <p>THANKING YOU.</p>
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	<p>Data pertaining to Table 1 -> Table 1</p> <p>79: odisha -> Odisha</p> <p>83: extensively prepared -> prepared</p> <p>86: mooted -> used</p> <p>91: reported -> measured</p> <p>allowed -> used</p> <p>95: Bhaba -> Bhabha</p> <p>98: maintained to be constant -> maintained constant</p> <p>100: demanded the suitability by purging Argon -> demanded argon gas agent -> gas</p> <p>101: were being -> were</p> <p>by maintaining the -> with</p> <p>102: as external -> external</p> <p>are merely depends upon -> depend on</p> <p>104: are being tabulated -> are shown</p> <p>105: Career -> Carrier</p> <p>110: The versatility of the equipment lies behind the design -> The equipment is designed</p> <p>115: to be applied on pin -> applied on the pin</p> <p>116: pin -> the pin</p> <p>126: microstructures by the help of -> images by</p> <p>127: micro structural images -> images</p> <p>129: were being -> are</p> <p>130: by the help of SEM of above specification -> in the above SEM,</p> <p>131: indicates -> indicate</p> <p>132: some elements -> elements</p> <p>135: was shown -> is shown</p> <p>In addition, the -> The</p> <p>136: relating Figure-3 was reported -> relating to Figure 3 is reported</p> <p>silica -> silica, titanium</p> <p>151: porosity of coating -> porosity of the coatings</p> <p>154: paid an important role -> was used</p> <p>158: are being tabulated -> are shown</p> <p>160: the help of -> a</p>	
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	<p>166: Cross -> cross 167: Porosity -> porosity 178: in turn authenticates -> supports 179: as obtained -> obtained 181: put -> were put 182: phases -> phases, 183: different distinct -> distinct are allowed -> allowed 184: Micro hardness -> microhardness with the help of -> with a using 50 Pa (0.493 N) -> using 0.493 N load 200: were being recorded by using -> were recorded by 201: accuracy up to second decimal limit (0.01 mg) -> precision of 0.01 mg, 204: are -> were 214: chalked out -> carried out 222: of operating power being -> power are 223: (a) -> (a), 224: found to be increased -> found to increase 225: for first -> during the first affirmed – assumed 226: drastic increasing trend -> drastic increase 227: due to -> to This is one fact indicating the more hardness -> This fact may indicate higher hardness 229: coating property variations bearing less hardness -> reduced hardness 232: being illustrated -> illustrated indicative trend -> time evolution 233: are -> is Substantial -> Initial 234: was being visible -> is visible, 235: was constant -> was roughly constant pertaining to -> in 239: resulted attributing to -> affected by</p>	
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	<p>be enhanced -> decrease with power 240: departing result -> increase again be lied -> be 246: reported [18] -> reported in [18] 247: is observed -> was observed 248: power -> power, is recorded -> was recorded 249: from wear -> from the wear apparatus deputed for the present investigation. ->apparatus. 250: The graphical representation concerning the variation -> The variation 251: with that of sliding time -> with sliding time focused on Figure 8 -> shown in Figure 8 253: being decreased -> decreases 254: as being occurred -> occurred 256: being observed -> observed, minutes -> minutes, 260: be minimum -> minimum 261: reported to be in -> found in the 262: values whatever lies for the power levels in between -> values between 9 to 12 kW -> 9 and 12 kW 263: as being observed -> observed wear -> the wear 265: were being -> are some images captured by FESEM -> FESEM images 269: formed which interlocks -> formed, which interlocked interface -> interface, attributing -> causing 270: are being -> are 271: assigning to a fatigue failure in the real sense -> indicating a fatigue failure 274: distance impacting -> distance, imparting 275: roughness -> roughness, 278: of certain -> certain 279: The further -> Further</p>	
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	<p>cannot -> does 281: stresses in -> stresses 336: eminently coat able -> coatable 337: technique with excellent wear resistance -> technique, resulting in coatings with excellent wear resistance 338: Addition -> The addition with red mud -> to red mud 340: impact -> present stage -> stage, 341: drastically improved -> rapidly type -> types, 359: Alok. -> A. 368: Waynea -> Wayne 384: chakraverty -> Chakraverty 395: pure and applied chemistry -> Pure and Applied Chemistry 399: mud -> Mud</p>	
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		