



SDI Review Form 1.6

Journal Name:	Journal of Materials Science Research and Reviews
Manuscript Number:	Ms_JMSRR_45533
Title of the Manuscript:	Advanced Multi-layered Thermal Barrier Coatings - An Overview
Type of the Article	Review Paper

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link: (<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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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)
<p>Compulsory REVISION comments</p>	<p>I have reviewed the manuscript. Generally, it is well written. However, I think some changes are in order:</p> <p>1. Authors should consider revising their English to make the work understandable.</p> <p>2. Abstract</p> <p>Line 7: ... operating temperature in.. could this be changed to .. operating temperatures in...</p> <p>Line 11:... developed by the researchers. Could this be changed to developed by researchers.</p> <p>3. Introduction</p> <p>Line 18:.. service temperature.. could this be changed to... service temperatures</p> <p>Line 21: ... gas turbine engine.. could this be changed to.... gas turbine engines..</p> <p>Line 24: Among these, TBC have the... could this be changed to... Among these, TBC has the</p> <p>Line 26: .. the hot sections of gas turbine.. could this be changed to... the hot sections of the gas turbine...</p> <p>4. Anatomy of TBC</p> <p>Line 35: Mostly, TBC composed... could this be changed to... Mostly, TBC is composed</p> <p>Line 37: .. Ni or Co based super alloys are the.. could this be changed to... Ni or Co based super alloys is the</p> <p>Line 47: .. which protect the.. could this be changed to... which protects the</p> <p>Line 49: [10].Ceramic...SPACE...[10]. Ceramic....</p> <p>5. Methods for TBC deposition</p> <p>Line 54: ...(a) atomic plasma spray (APS),... could this be changed to...(a) APS,.....</p> <p>Line 56: ... HVOF/ APS method.. could this be changed to.. HVOF/ APS...</p> <p>Line 57: ... APS/ EB-PVD method... could this be changed to.. APS/ EB-PVD methods...</p> <p>Line 86: ... atmospheric plasma sprayed (APS).. could this be changed to.. APS..</p> <p>Line 107: ... coating process, HVOF process and APS process. Modification of TBC.. could this be changed to.. coating, HVOF and APS processes. Modification of the TBC</p> <p>Line 112: ... a low pressure plasma spray (LPPS).. could this be changed to...a LPPS</p> <p>Line 114: ... Further improvements.. .. could this be changed to... Further were improvements..</p> <p>Line 116: ... system consisted.. could this be changed to... systems consist...</p> <p>Line 119: ... HVOF process replaced.. could this be changed to... The HVOF process replaced...</p> <p>Line 121: ... rhenium.. could this be changed to... rhenium (Re)...</p> <p>Line 131: ... evaluated are.. could this be changed to... evaluated were...</p> <p>Line 144: ... after long time annealing... could this be changed to... after long annealing</p> <p>Line 149: ... point around... could this be changed to... points around..</p> <p>Line 153: ... which is a slightly... could this be changed to... which is slightly...</p> <p>Line 158: ... increasing the test... could this be changed to... increasing test..</p> <p>Line 159: There are many studies conducted... could this be changed to...Many studies have been conducted...</p> <p>Line 166: ... reason for having long thermal cycling life of LMA coating is.. ... could this be changed to...reason why LMA coating has a long thermal cycling life is....</p> <p>Line 167: ... which results low Young's... could this be changed to... which results in low Young's...</p> <p>Line 173: ... result showed... could this be changed to... results showed...</p> <p>Line 185: ... material can satisfy all requirementscould this be changed to... material could satisfy all these requirements ...</p> <p>Line 190: ... as thermal....could this be changed to... as a thermal....</p>	



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Line 191: Multi-layered thermal barrier coating composed of different ceramic coating materials having different functions. **THIS IS NOT A COMPLETE SENTENCE!!**

Line 198: .. up to melting....could this be changed to... up to **the** melting....

Line 201: .. promising candidate....could this be changed to... **promising candidates**....

Line 206: .. increasing toughness....could this be changed to... **increased** toughness....

Line 207: .. YSZ has been done....could this be changed to... YSZ **was** done....

Line 209: .. show promising....could this be changed to... **showed** promising....

Line 210: .. coating has low thermal expansion co-efficient which leads to....could this be changed to... coating **had** low thermal expansion co-efficient which **led** to....

Line 211: .. and substrate. Single layer coating of LZ7C3 is not....could this be changed to... and **the** substrate. Single layer coating of LZ7C3 **was** not....

Line 213: .. so that it can protect....could this be changed to... so that it **could** protect....

Line 215: .. system consist of LZ7C3/YSZ can act....could this be changed to... system **that consists** of LZ7C3/YSZ **could** act....

Line 215: .. cerates also can be....could this be changed to... cerates also **could** be....

Line 231: .. thus meet the....could this be changed to... thus **meeting** the....

Line 243: .. Sm₂Zr₂O₇ exhibit pyrochlore....could this be changed to... Sm₂Zr₂O₇ **exhibits** pyrochlore....

Line 247: .. inside ceramic....could this be changed to... inside **the** ceramic....

Line 255: .. Gd₂Zr₂O₇/ YSZ ...close the SPACE.. Gd₂Zr₂O₇/**YSZ**...

Line 257: .. CMAS (calcium magnesium alumino silicate)could this be changed to... **calcium magnesium alumino silicate (CMAS)**...

Line 277: Researchers are looking for improving the....could this be changed to... Researchers are looking **to improve** the....

Line 278: .. approach of composite....could this be changed to... approach **using** composite....

Line 280: .. lifetime than other TBC systems. In DCL....could this be changed to... lifetime than **the** other TBC systems. In **the** DCL....

Line 288: .. conductivity and low sintering ability by the new approach....could this be changed to... **conductivity and low sintering ability**.

Line 290: .. layers by HVOF and APS techniques. Microstructure,could this be changed to... layers **using** HVOF and APS techniques. **The** microstructure,

Line 303: Microstructural,could this be changed to...**The microstructural**,

Line 309: .. strength CYSZ/ Al₂O₃....could this be changed to... strength of **CYSZ/Al₂O₃**.....

Line 316: .. measured by laser flash....could this be changed to... measured **using the** laser flash

Line 322: .. with increasing the number of....could this be changed to... with **increasing number** of....

Line 324: .. problem like....could this be changed to... problems **like**....

Line 327: .. functional graded....could this be changed to... functionally graded....

Line 334: Microstructure, porosity, composition and other properties varies gradually....could this be changed to... **The** microstructure, porosity, composition and other properties **vary** gradually in functionally

Line 340:.... resistance of coating. could this be changed to... resistance of **the** coating.

Line 346:.... prepared five layer ceramic-ceramic functional graded....could this be changed to... prepared **a** five layer ceramic-ceramic functionally graded....

Line 351:.... increased from top layer to inner layer....could this be changed to... increased from **the** top layer to **the** inner layer....

Line 353:.... La₂Zr₂O₇ [LZ] by plasma spraying method. Thermal shock test was conductedcould this be changed to... La₂Zr₂O₇ [LZ] **using** plasma spraying method. Thermal shock tests **were** conducted

Line 359:.... was prepared by APS technique....could this be changed to... was prepared **using the** APS technique....

Line 365:.... MCrAlY by APS method....could this be changed to... MCrAlY **using** APS.

Line 370:.... factor of 100-1000....could this be changed to... factor of **100 -1000**.

Line 376:.... sprayed by APS technique....could this be changed to... sprayed **using** APS.



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	<p>Line 393:.... nanostructured mono and multi-layered....could this be changed to... nanostructured mono- and multi-layered....</p> <p>Line 394:.... TBC deposited by spray....could this be changed to... TBC deposited using spray....</p> <p>Line 395:.... resulting mono and multi-layered....could this be changed to... resulting mono- and multi-layered....</p> <p>Line 397:.... results higher....could this be changed to... results in higher....</p> <p>Line 412:.... GZ is low leads to short....could this be changed to... GZ is low leading to short....</p> <p>Line 412:.... expansion co-efficient leads to....could this be changed to... expansion co-efficients lead to....</p>	
Minor REVISION comments		
Optional/General comments		

PART 2:

	Reviewer's comment	Author's comment <i>(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)</i>
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

Reviewer Details:

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