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(54) **Polycrystalline diamond compact cutter with interface**

(57) A higher performance cutter for use in drilling, mining and quarrying comprises an abrasive layer; a cemented carbide core bonded to said abrasive layer; and a cemented carbide outer layer bonded to said core; wherein the metal binder content of said core is less than the metal binder content of said outer layer.. The carbide substrate of the PDC cutter has improved adhesion of the diamond layer to the interface because of maximizing the interface surface, a harder/stiffer center region to support the diamond table, and a softer/tougher outer region

to reduce the tendency for cracking. The cutting action of this product can also be designed to deploy a kerfing cutting action on the rock as the cutter develops a wear flat. The transition from the diamond layer to the carbide can be accomplished in a more symmetrical pattern that could be achieved through other production methods. All interface surfaces can be produced with rounded and curved surfaces such that there are no flat surfaces or straight lines which would act as stress raisers.

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Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 99 30 3237

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                          |                                                         |                                         |
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