5. CONCLUSION

Cette étude a permis d'évaluer et de comparer deux systèmes de gestion thermique pour un cycle de sollicitation précis. Le système avec un MCP est plus performant pour absorber les pics de puissance et limiter l'élévation de température, cependant il faut prévoir un système complémentaire pour le régénérer. En effet, avec une température ambiante fixée à 20°C on n'arrive pas à régénérer le MCP. Le refroidissement par air ne présente pas ce problème mais les températures obtenues sont plus élevées et le coût opératoire induit pourrait être plus conséquent. Une solution serait donc de coupler ces deux systèmes pour absorber les pics de puissance de la batterie avec le MCP et régénérer le MCP avec l'air. Ainsi, les coûts opératoires devraient être réduits et la gestion thermique devrait être toujours opérationnelle. Cependant aucune des deux solutions permettent d'atteindre l'objectif de 25°C en température maximale. Il faudrait donc revoir cet objectif ou améliorer la solution. Nous avons vu qu'au-delà de 2 mm d'épaisseur l'ajout de MCP n'est plus utile. Cela est peut être dû à la conductivité thermique du MCP qui est très faible. En modifiant cette conductivité thermique en ajoutant une mousse métallique par exemple une épaisseur de 3, 4 ou 5 mm de MCP pourrait diminuer la température maximale de la cellule. Par la suite, il serait aussi nécessaire d'effectuer une expérience correspondant à cette étude pour pouvoir valider le modèle et les résultats.

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