Reusability of Cd Electroplating Tooling for Zn-Ni deposition
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ABSTRACT
Cd coatings offer a combination of unique properties that are highly desirable in many engineering applications. Nevertheless, Cd processing poses serious health and environmental drawbacks because of which new alternatives are sought. Among them, the Zn-Ni electro deposi tions have been seen as a viable replacement for Cd coatings. This project deals with the design of a conformal tooling structure that can be used for both Cd and Zn-Ni electroplating processes of a nose landing gear part. The conforming components are designed and optimized based on Elsyca PlatingManager software technology.

CONCLUSION
The percentage of overplated and underplated surface areas can be limited with a use of an identical tooling structure. This implies that existing tooling that was developed for the Cd plating process might be reused for a replacement Zn-Ni plating process. The proposed tooling concept was based on insulating shields for reducing the overplated areas of the part, and conforming anodes (addition to the main anodes) which address the underplated zones. The optimized tooling structure as presented in this poster was achieved by use of the Elsyca PlatingManager software. Care must be taken that also the nickel content is within specifications. Depending on the actual chemistry being used, the Ni content might be partially out of spec. If this turns out to be the case, then either the Zn-Ni bath chemistry must be accurately monitored, or indeed the tooling for the Zn-Ni plating process might need to be further elaborated compared to the tooling that was used for the Cd plating process.

REFERENCES
Characterization of a Zinc/Nickel plating bath, Paulo Vieira, Bart Van Den Bossche, Alan Rose, Plating & Surface Finishing, December 2009
Elsyca PlatingManager: http://www.elsycaplatingmanager.com/
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