Deposited Micro Porous Layer as Lubricant Carrier in Metal Forming

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A new porous coating for carrying lubricant in metal forming processes is developed. The coating is established by simultaneous electrochemical deposition of two pure metals. One of them is subsequently etched away leaving a porous surface layer. Lubricant can be trapped in the pores acting as lubricant reservoirs. Conventional friction tests for cold forming; ring compression and double cup extrusion tests are carried out with Molykote DX paste and mineral oil as lubricant. Both lubricants act as intended for the ring compression test whereas only the low viscosity oil perform successfully in the cup extrusion test. For all specimens without the porous coating, high friction conditions are identified.

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- **Contributors:** Arentoft, M., Bay, N., Tang, P. T., Jensen, J. D., Paldan, N. A., Mizushima, I., Eriksen, R. S.
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