

# **SAW v. SWP: Material Analysis and Cost Efficiency Study**

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## **ABSTRACT**

Ceramco, Inc., a OEM supplier of printing and transfer rolls, wishes to expand into the caster roll industry by incorporating 424-grade stainless steel into their standard submerged arc welding (SAW) capabilities. This study was conducted to determine if Ceramco would benefit by adding powder to the welding process, resulting in a technique known as submerged arc welding with powder (SWP). Samples were generated at Ceramco by our team through the two different welding processes for surface property tests. The data obtained from the analysis and observation of the welding processes was used to determine the material costs and time efficiency of each type of system. Our team has concluded that the submerged arc welding with powder should be implemented with the suggested modifications in weld rate. Welding with the powder added will decrease the cost of welding a single roll by 21% to 23%. This would result in an overall cost savings of approximately \$170,560 per year. It would also conserve enough welding time to incorporate 750 caster rolls per year without increasing equipment or labor costs, generating an additional \$750,000 in sales per year.