

A Glance in the Rear View Mirror at the Evolution of Vacuum Roll to Roll Coatings

By John Fenn

As far as it can be documented vacuum roll to roll (R2R) coating began its commercial existence over 70 years ago. Credit for its reduction to practice is usually given to a Hungarian scientist, Paul Alexander, who started work on this technology in the early 1930's. His first work was directed at coming up with a replacement for Au leaf, as its manufacturing was being done by manual labor, a very slow and expensive process. He had built and sold two vacuum R2R coaters for this purpose. World War II had a major impact on the advancement of vacuum R2R coating, mainly because it was found that you could duplicate the performance of Al foil with a vacuum deposited Al coating on flexible substrates at a tremendous weight savings. This was particularly important for use in airplanes. After the war it was found that vacuum deposited Al on flexible foils could be used in the labeling and packaging industries. This created a lot of interest in the commercial world and sparked rapid advances in the equipment designs, materials and process techniques. Vacuum R2R coating never looked back, expanding into many applications and uses. This paper will provide a glimpse into the history of vacuum R2R coating from its founding days until the present. Please sit back and enjoy the memories and fun associated with this business.