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Innovation: Changing the culture with my personal and professional experiences in metallurgy and food separation industries

During my professional career including being a research chemist, process engineer, mining consultant and chief metallurgist, I have had the opportunity to change culture through different types of innovation. Examples include academic research, metallurgical circuit changes and other projects. Recently, ST Equipment and Technology (STET) has developed a processing system based on triboelectric separation. This dry technology provides the mineral processing industry a means to beneficiate fine materials. In contrast to other electrostatic separation processes that are typically limited to particles greater than 75 µm in size, the triboelectric belt separator is ideally suited for separation of very fine (<1 µm) to moderately coarse (500 µm) particles with very high throughput. The high efficiency multi-stage separation through internal charging/recharging and recycle results in far superior separations that can be achieved with a conventional single-stage free-fall triboelectrostatic separator. The triboelectric belt separator technology has been used to separate a wide range of materials including mixtures of glassy aluminosilicates/carbon, calcite/quartz, talc/magnesite and barite/quartz and recently food/protein separations. These results along with personal antidotes of innovation and cultural change will be presented.

Biography

Paul Miranda has over 15 years of experience in metallurgical, process engineering, analytical testing, and academics. Experienced and trained in hydrometallurgy, he has extensive experience in hydrometallurgy, flotation testing, gravity testing, magnetic separation, diagnostic leach testing, and other laboratory experience. He has extensive analytical training which includes scanning electron microscopy, inductively coupled plasma spectroscopy, atomic adsorption microscopy, x-ray diffractometry, carbon sulfur analysis, and x-ray fluorescence. During his academic research has worked and implemented novel fundamental research in arsenic and selenium remediation, metal recoveries using ion exchange technologies. He has been responsible for lab work, pilot plant work, research, process development, engineering design, start-up, operations, management and environmental affairs for hydrometallurgical plants for managing arsenic containing solutions. He has authored or co-authored several papers, presentations, and holds multiple patents.

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