

Fireline, Inc., Youngstown

Intervention Key Words: Bulk Bags, Screwfeeders, Scales, Scissor Lift

Industry: Manufacturing

Risk Factor(s): Repetitive motion, Awkward Posture- Back deviations and Squatting/Kneeling, Manual Handling- Lifting/Carrying and Pushing/Pulling, High Hand Force- Pinching/Gripping

Situation:

Fireline Inc. produces refractory products used in metal melting and high temperature industrial applications. The process for making the products requires a mix that is made by hand. An operator begins by weighing out various materials and adding them to a 450-gallon mix tank. These materials arrive at the workstation in a number of different forms, from 55 gallon drums to 50 lb bags. Significant risks for Cumulative Trauma Disorders (CTDs) arise as the worker handles the mix components. Repetition (up to 80 batches per day), high loads and awkward lifting positions contribute to the CTD risks.



Bags are carried from pallets to mixing area

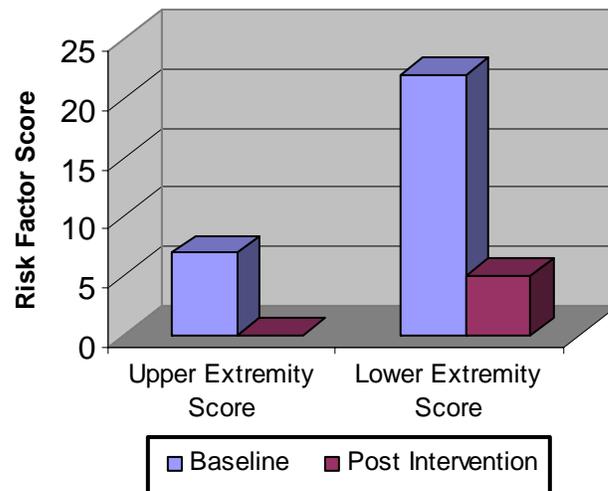
Solution:

Fireline proposes to purchase bulk bags when possible and to discontinue using the 50-lb. bags. To accomplish this they bought 3 bulk bag unloaders with screwfeeders for the ingredients. Bulk material bags are loaded into the machine using a forklift. Workers can then obtain necessary quantities (measured by weight) from a feeding system located underneath the unloader. In addition, Fireline purchased 3 scales to use with the screwfeeders and scissor lifts to enable the mix operator to lift bags of material not available in bulk from waist level. Total cost for the equipment was \$59,155. Fireline received a \$40,000 award from Safety Grant\$ to help offset the costs.



Bulk bags of material and an unloader reduce CTD risks

Results:



- Upper Extremity Risk Factor scores fell from 5 to 0, while Lower Extremity scores decreased from 22 to 7. This equates to an 83% average improvement.
- CTD, Lost Days, Restricted Days and Employee Turnover rates were reported to be 0 (per 200,000 hours worked) for 12 months prior to the intervention. These rates remained at 0 for 2 years following.
- Fireline Inc., reported a 10% increase in production with consistent quality following the intervention.