

## Capital Resin Corporation, Columbus

**Intervention Key Words:** Vacuum Lift, Power Vibrator Table, Power Roller

**Industry:** Manufacturing

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

### Situation:

Capital Resin Corporation is a specialty chemical manufacturer that produces formaldehyde, various types of foundry resins, acids and catalysts for resins, refractory coating, and many other types of specialty products. Recent product additions and increased demand had led Capital Resin to be concerned with operators in the refractory mixing area. Here, employees manually lift thirty (30) 100 lb bags of mix and place them on a conveyor. They must also lift fifty-two (52) 50 lb bags and place them on the same conveyor. The conveyor transfers the bags to an automatic opener and dumper to be mixed with various chemicals to make the refractory. The cycle occurs once every hour and is handled by 2 workers. This equates to lifting 56,000 lbs per 10 hr shift. Once the bags are loaded, the product is “dropped” into large containers which hold 1800 lbs of material. The workers must manually shake the boxes to settle the product in order to close the box and then push them down a set of rollers where they are then picked up by a fork truck. In addition to the obvious forces needed for material handling, other Cumulative Trauma Disorder risk factors include repetition, awkward postures and bending/lifting.

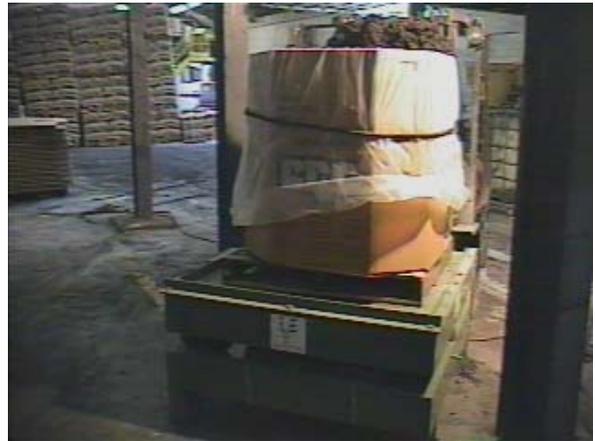


**Workers shake and move 1800# box of refractory product**

### Solution:

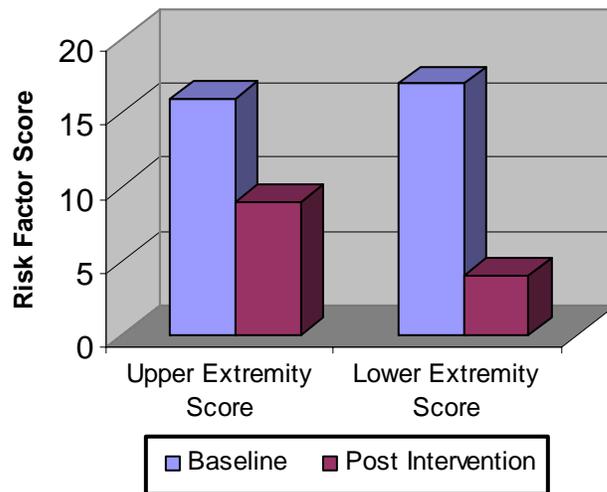
Capital Resin Corporation approached their CTD risk problem by purchasing a vacuum operated material handling device. The device has the ability to lift the 100 lb mix bags

without requiring any effort from the operator. The job now only requires guidance of the vacuum device from the pallet of bags to the transport container, effectively reducing the CTD risk factors associated with the repetitive lifting of the heavy bags. The company also purchased a vibrating table to be used when loading shipping boxes. The table vibrates to cause the refractory product to settle in the box. The workers can then close the lid without handling the material. The new table also has a built-in scale for accurate measurements and powered rollers to transport the full containers to an area in which it can be lifted by a fork lift. Total cost for the intervention was \$41,321. Capital Resin Corporation received \$27,104 in assistance from SafetyGrant\$ to offset the costs.



**Pictures of Demo Vacuum Lift and Vibrating Table**

**Results:**



- CTD Risk Factor scores decreased 61% following the intervention.
- CTD, Restricted Days and Lost Days rates (standardized per 200,000 hours worked) were at 0 the year prior to the intervention and remained at 0 for 2 years following.
- Employee Turnover rates decreased from 145 to 105 (per 200,000 hours worked) in the same time period, a 28% improvement.

