GK Addresses Silica

Claude Hutchens, GK Foundry Market Director & International Sales
Amy Donahue-Kelley, GK Global Marketing Manager

There has been much discussion in the industry, specifically in the last few months, on the new silica rulings and how to keep operators away from noisy/dusty/hot environments of the foundry. This is a big challenge, especially for steel and iron foundries, due to the extreme heat and abrasive environment. Resources are being developed to educate metalcasters, but many questions still remain as to whether any changes are economically feasible or can actually meet the Permissible Exposure Limits (PEL).

While the new PEL requirements will not be fully implemented until spring of 2018, General Kinematics has been involved in many preliminary discussions as how to address the cleaning room in particular. This area of the foundry is where most improvements must be made, as the majority of hands-on workers are concentrated in this department. As hot castings are cooled and cleaned, sand is removed which enters the air, thus increasing silica exposure risks. How can suppliers like General Kinematics engineer and manufacture safer, as well as more ergonomically-friendly equipment processes to improve cleaning room safety? Most foundries will be working to address this issue within the constraints of existing installations. Space and elevation are always at a premium, but it is possible to design ideal arrangements that meet the new PEL standards.

To implement these improvements, existing technology, like the General Kinematics VIBRA-DRUM® Sand & Casting Conditioner and the SPIRA-COOL® Casting Cooling Conveyor, can be utilized. These machines are designed with a closed air handling system, containing airborne silica particles within the machine itself. By retaining the material within these enclosed shakeout and cooling units, dispersion of airborne particles is significantly reduced or eliminated.

Another area that can offer significant gains in silica reduction is the implementation of pre-blast after cooling. Removing silica from castings and sprue prior to further handling also reduces the amount of exposure to material handlers.

Finally, if work needs to be done prior to casting cooling and cleaning, foundries can protect workers by installing robotic or enclosed manipulator systems for sorting and de-gating operations, removing the operator completely from the environment, and localizing dust control. GK provides heavy-duty flat stroke vibratory conveyors that offer low noise, and are designed for manipulator contact.

Environmental safety is more important than ever to create a positive and healthy working environment for metal casting teams. Innovative equipment designs that utilize self-contained air handling and dust collection solutions can be implemented in existing installations to significantly reduce exposure to silica, heat, dust, and other process related byproducts. Also, utilizing processes and technologies to separate, clean, and remove silica prior to sorting operations will ensure that workers have a healthier, and safer, working environment.