ACGIH Manganese TLV Change Statement:

After being under study since it first appeared on their Notice of Intended Change List in 2009, the American Conference of Governmental Industrial Hygienists (ACGIH) recently advised that it will, in fact, adopt changes to the Threshold Limit Value (TLV) for manganese in the 2013 Edition of its TLVs and Biological Exposure Indices (BEIs) publication. The manganese TLV, currently 0.2 mg/m^3, is being lowered to 0.02 mg/m^3 for respirable particulate matter and to 0.1 mg/m^3 for inhalable particulate matter*.

The ACGIH's change in the manganese particulate TLVs appears to be based on reports of pre-clinical neurobehavioral and neuropsychological changes in workers exposed to chronic low levels of manganese. Some reviewers have pointed out methodological flaws in these studies and that they have demonstrated notably inconsistent findings after several decades of research. Nevertheless, the ACGIH has decided to move forward with the reduction in its TLV for respirable and inhalable manganese. The new TLVs do not distinguish between the form of manganese found in welding fume and other forms of manganese.

The ACGIH, is a non-profit, non-governmental corporation dedicated to promoting health and safety in the workplace. According to the ACGIH, its TLVs represent levels of exposure to which nearly every worker can be exposed throughout their working career without adverse health effects. They also caution that TLVs are not intended to represent fine lines between safe and unsafe exposure levels.

The ACGIH acknowledges that its TLVs are not consensus standards and do not take into account economic or technical feasibility issues. The ACGIH states that that some governmental entities utilize its TLVs in adopting standards. The Permissible Exposure Limit (PEL) of 5.0 mg/m^3, ceiling, remains the US exposure limit for manganese enforced by OSHA. Lincoln continues to recommend that exposures in the workplace be controlled to the TLV or the applicable regulatory exposure limit standard, whichever is the more conservative.

Many approaches should be considered for the workplace in order to meet the new TLV limits for manganese. These might include: a change in the welding process or procedure to reduce the rate of fume production where consistent with application requirements, the use of engineering controls such as local exhaust ventilation, work practice improvements and work process design changes. Should these or other options prove infeasible or inadequate, respiratory protection may also be necessary, such as the use of positive pressure options like supplied-air and Powered Air Purifying (PAPR) systems. Lincoln will continue to work with customers to develop the solutions they need to weld effectively and meet this new challenging .02 mg/m^3 TLV.

* Total inhalable dust means the fraction of airborne material which enters the nose and mouth during breathing and is potentially available for deposition in the respiratory tract. Respirable dust refers to that smaller particle size fraction which is able to penetrate to the gas exchange region of the lung. Welding fume particles are predominantly respirable.