8.8.4 Ventilation

Adequate ventilation is required to prevent the exposure to toxic fumes to the worker and people in the vicinity of the hot work. The ventilation requirements must consider:

- The hot work activities being undertaken including equipment/processes, toxicity and sources of fumes;
- The work environment;
- Proximity of ventilation to the fume source and workers breathing zone;
- Whether the workers breathing zone and PAPR inlet can be supplied with good quality air and is not sheltered/restricted;
- Other personnel in the area for exhaust/wind direction and possible dust generation;
- The possibility of moving the task to a more suitable environment, i.e. dedicated hot works area with fixed extraction fans; and
- The need to maintain a safe oxygen level and ensure the concentration of flammable gas, vapour, mist or fumes stays below 5 per cent of the lower explosive limit (LEL).

There are three main types of ventilation (in order of preference):

- Local exhaust ventilation (LEV) (i.e. fume extraction);
- Forced dilution ventilation (i.e. powered fans); and
- Natural ventilation (i.e. natural wind in open air environments).

For hot work activities producing fumes, Powered Air Purifying Respirators (PAPR) are mandatory and should be used in conjunction with adequate ventilation, i.e. portable/fixed fume extraction units (preferable), powered fans or natural cross winds, when in an outdoor environment, for low fume generating processes. When using natural ventilation, operators need to consider if other types of ventilation are available and the variability of wind.

Where possible, fume generating material is to be eliminated or minimised prior to starting the hot work task, e.g. removal of grease, oils, surface coatings, etc.

It is good practice to attach an information tag to any powered ventilation stating its purpose and to not turn off to avoid ventilation unintentionally being removed.

Consideration should also be given to if the work can be effectively accomplished using a process that generates a lower level of fumes (Refer to Figure 8-1 below).

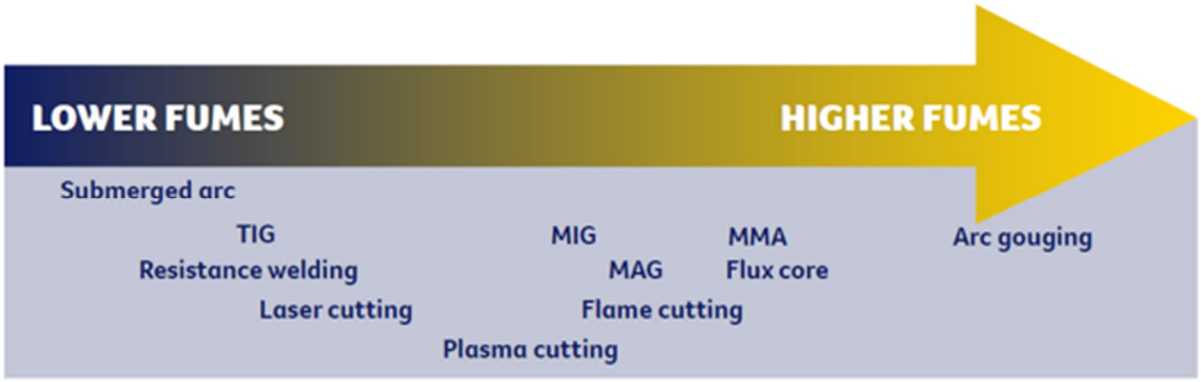

Figure 8-1: Fume Generation Processes

Document Reference - MAC-STE-STD-139