For greater protection in laboratories

Safety is of utmost importance wherever people are working with hazardous chemicals. This can be only achieved by ensuring that the equipment in laboratories and in workplaces at industrial, teaching and research environments, where people are handling hazardous materials, meet the highest levels of safety in a comfortable and effective working environment. Specially-designed facilities based on the particular project and the types of chemicals used present the current standard.

Protective measures

Explicit handling of hazardous materials requires protective measures of a technical nature, with the highest standards placed on equipment, to ensure that any potential hazards are under total control. This includes the protection of personnel and the workplace environment such as safe and secure handling when other materials and equipment are involved. This means that all necessary steps must be taken to avoid dangerous situations.

Workplace design

Hazardous workplaces are designed for the task in hand and the materials used. Exacting standards are already in place for furnaces, hazardous areas and exhaust areas. Apart from using suitable equipment, reliable and protective solutions can be applied to meet the task in hand where safety is found in the detail.

Work benches and surfaces

Depending on their location work surfaces should be selected for their correct design and materials and are to be resistant to chemical, physical and thermal environment they are in. Laboratory benches should thus be smooth and easy to clean and disinfect. A marine edge ensures that liquids cannot drip onto the floor.

The easy-to-clean full-size laboratory benchtops in non-porous technical ceramics with seamless and continuous marine edge together with ceramic sinks are the perfect combination for resistance to chemicals, scratches and temperature. This engineering is ideal for wet areas, exhaust systems or other wet chemical workplaces and offers a working environment with all built-in safety standards.

Fume cupboards and ventilation systems

Laboratories must be fitted with sufficient ventilation equipment to be effective at all times. The air supply must be warmed if necessary and conveyed draft-free to its point of use. The air flow should not be lower than 25m³/h per m² of working surface.

High demands are placed on the ventilation for exhaust systems. They must therefore be designed so that, when in operation, no gas, vapor or dust build-up to dangerous concentrations in the interior of the ventilation system which can flow into the laboratory. In addition, no dangerous and explosive atmosphere is to bebuild up in the interior of the ventilation system and personnel are to be protected from the splashing of dangerous chemicals and glass splinters. The minimum requirements to be observed are defined in the standard EN 14175.

Maximum safety is ensured by using effective fume scrubbers installed locally. They can minimize negative environmental impact and prevent corrosion from aggressive exhaust gasses to exhaust and ventilation systems. A high degree of absorption is achieved by using an efficient absorption system, low pressure loss and continuous absorption even while changing the washing liquid. Just like laboratory waste-water, the washing liquid from the fume scrubber must be processed according to local laws before being put into the public sewage system. This can be done by a decentralized neutralization unit directly at source, e.g. installed under a fume cupboard. The direct connection increases safety and protection against aggressive media.

The technical ceramics work tops provide highest chemical, scratch and heat resistance. Fume scrubbers and neutralization unitsallow decentralized waste-air treatment at the laboratory fume cupboard as well as neutralization of acid and alkaline waste-water directly at the source of emission.

Summary
Wherever hazardous materials are involved, any procedure must be carried out quickly and efficiently. This is only made possible by having equipment designed by the task in hand. It not only provides the highest degree of safety but also complies with and even exceeds all required standards and regulations.

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