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Advancing Safety and Sustainability Standards with Trane® Technologies

The HKSAR Government plans to introduce an Ozone Layer Protection (Amendment) Bill in 2024, phasing down hydrofluorocarbons (HFCs) due to safety and environmental concerns. In parallel, Trane is revolutionizing the operational excellence of chiller plants by utilizing its innovative TruSense® RMWH Refrigerant Monitor, to enhance chiller safety and sustainability.

Government Initiatives to Safeguard the Earth and Chiller Operations

The Government of the Hong Kong Special Administrative Region (HKSAR) intends to introduce into the Legislative Council a bill to amend the Ozone Layer Protection Ordinance (Cap. 403) through its Environmental and Ecology Bureau (EEB) in 2024. The purpose is to regulate and phase down the production and consumption of HFCs in Hong Kong. Commonly used as refrigerants in air-conditioning and refrigeration equipment, HFCs are a category of greenhouse gases that can cause climate change, with global warming potential (GWP) of up to 14,800 times that of carbon dioxide.

Previously, as part of the local government's heightened effort to protect the Earth that we all live in, the EEB had filed a Consultation Document to Regulate and Phase Down Hydrofluorocarbons last July, stating that any person who allows or causes any scheduled refrigerant to be released into the atmosphere without valid due diligence defense is criminal and may face a fine of up to HK$100,000.

Internationally, Standard 15 of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) requires that each refrigeration machinery room shall contain a refrigerant leak detector that can actuate an alarm and mechanical ventilation. Accordingly, the Architectural Services Department of Hong Kong issued in 2022 a General Specification for government buildings, stipulating that any plant room with central refrigeration facilities must have a detection and alarm system.

Revolutionizing Plant Safety Inspections with Trane® Technologies

In line with the HKSAR Government's regulatory initiatives, Trane Hong Kong, a climate innovator and leading provider of heating, ventilation, and air-conditioning (HVAC) systems, offers TruSense® RMWH Refrigerant Monitor leveraging innovative Trane® technologies, for the Hong Kong market.

- **Continuous Auto-Monitoring of Leakage for Safety**

The TruSense® RMWH Refrigerant Monitor is a smart auto-monitoring system that continuously tracks the content of designated gases in the air to detect leaks of refrigerants in a mechanical room, including those that are harmful to the environment and costly to replace. By providing early warning alarms, the monitor enables chiller operators to react promptly and prevent further loss and potential harm.

Fully compliant with ASHRAE's Standard 15 safety requirements, our TruSense® RMWH monitor can trigger visual and audible alarms both inside and outside of the refrigeration machinery room, activating mechanical ventilation, and minimizing risks to people and the environment. This thus helps maintain a safe and healthy indoor environment for chiller plants. The monitor's advanced features make it an essential tool for chiller plant operators who value safety, efficiency, and sustainability.

- **Unparalleled Reliability, Sensitivity, and Versatility**

TruSense® RMWH is exceptionally reliable and sensitive. It utilizes a photoacoustic infrared sensing technology to continuously monitor and detect refrigerant concentrations down to 1 part per million (ppm) in the surrounding air, well below the threshold perceptible to humans.

Moreover, the monitor is remarkably versatile, featuring a comprehensive library that covers not only traditional refrigerants, such as R22, R123, R134a, R410A, and R407C, but also new-generation low-GWP refrigerants including R514A, R1233zd, etc. Our monitor is field-selectable, allowing for simultaneous real-time monitoring of up to six different refrigerants.

The release of high-GWP refrigerants poses hazards not only to the environment but also to human safety, as these colorless and odorless gases in high concentrations can cause health problems such as breathing difficulties, headaches, loss of consciousness, or even death. Therefore, implementing a highly reliable and efficient refrigerant monitor that can quickly identify and eliminate potential safety hazards is essential for ensuring a safe workplace and protecting the environment.

- **Superior Connectivity with BASs and User-Friendly Design**

TruSense® RMWH Refrigerant Monitor can activate mechanical ventilating systems while triggering alarms in case of a refrigerant leak. During this process, it can seamlessly integrate with building automation systems (BASs), through the BACnet, Modbus, or 4-20 mA Analog communications protocol, to ensure the utmost safety and communication efficiency.

The RMWH monitor is compact and user-friendly, designed for easy installation and integration into existing chiller plants. Its 7” touch screen interface displays real-time refrigerant sampling status and provides access to calibration mode, event logs, settings, and diagnostics. The monitor has a green LED operation indicator that lights up when powered on, confirming proper function.

Application of TruSense® RMWH Monitor in Hong Kong

Trane’s TruSense® RMWH Refrigerant Monitor has gained recognition and adoption in various iconic buildings in Hong Kong, such as Landmark, Alexandra House, and St. George’s Building in Central, as well as Tuen Mun Hospital and The Hong Kong University of Science and Technology, to name a few. With these buildings having adopted the best industry practices for prioritizing the safety of both chiller plant operators and building occupants, the stakeholders of many other buildings are set to follow suit.

The buildings mentioned above have chosen our TruSense® RMWH monitor mainly for its capabilty of simultaneously safeguarding multiple chillers that adopt different types of refrigerants. Moreover, by implementing our highly reliable and sensitive TruSense® RMWH monitor, the building owners can also effectively avoid penalties associated with refrigerant leaks and asphyxiation hazards.

In conclusion, by launching the ASHRAE-compliant TruSense® RMWH Refrigerant Monitor, the ideal solution for attaining the utmost safety and sustainability of air-conditioning and refrigeration systems, Trane fully supports the local government in protecting the environment and chiller plant safety.

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