

SF₆—Sulfur Hexafluoride in Circuit Breakers

Application Measuring SF₆ gas, which is used in circuit breakers.

Problem SF₆ gas is used as an insulating medium in high KVA breakers. If moisture is able to infiltrate over time, arcing can occur. This can lead to premature failure of the breaker, possibly with catastrophic results. Also, these breakers are charged from bottles of SF₆ gas. If the gas in the bottle is wet, this can lead to introducing high moisture into a previously dry breaker.

Solution Periodically check all SF₆-filled circuit breakers for high levels of moisture. Also check the charging bottles prior to introduction of SF₆ into any circuit breaker. The typical bottle of gas is supplied with a dewpoint of –65°C or lower.

Equipment The SADP Mini portable is ideal for this application. Since this instrument will respond quickly during testing, low losses of SF₆ to the atmosphere can be expected. SF₆ is considered a “greenhouse” gas and utilities are trying to minimize its loss during maintenance and testing.

Advantages The SADP Mini has no internal piping before the sensor which reduces the purging time. When using the instrument from dry to wet in the recommended manner, stable results are achieved within a few minutes. It is advisable to use 1/8” stainless steel tubing and request a 1/8” tube fitting for the instrument instead of the usual 1/4” fitting.