

ANS Issues Clarification on ANSI/ANS-3.4-1983 (R1988) "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants."

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Inquiry:

Please define or give examples of marker or tracer gases noted in ANSI/ANS-3.4-1983, Section 5.4.2, Nose. I also need examples of a marker gas that would be on a scratch and sniff test.

Response:

The ANSI/ANS 3.4-1983 standard is historical and no longer a current American National Standard. It has been replaced in whole by ANSI/ANS-3.4-1996 (R2002), which is a current American National Standard. Your inquiry was analyzed in accordance with the current standard as the need for clarification is still applicable to the current standard.

Some gases do not have a detectable odor. Marker gases and tracer gases are two methods commonly used to enable these gases to be detected by olfactory sensing.

Marker gases are added to enable odorless gases to be detected by olfactory sensing. An example of a marker gas found on a scratch and sniff test is the gas (mercaptan) commercially added to natural gas. A sulfur compound has been added to "mark" or enable the gas to be smelled. For testing purposes, for example, you would perform an olfactory test utilizing scratch and sniff natural gas cards. Since natural gas is odorless, a sulfur compound is added to allow you to detect the odor of the gas.

Tracer gases are gases that when released have a tracer substance that is immediately released to "trace" the gas. The substance that is released has a detectable odor, which enables them to be detected or smelled by humans. An example of the use of a tracer gas is that used in the CARDOX® system. A wintergreen scent is released to follow the cardox enabling the detection of the release of the gas. For testing purposes you would perform an olfactory test using the wintergreen scent.