

NASAL RANGER® FIELD OLFACTOMETER

INTRODUCTION TO FIELD OLFACTOMETRY

The Nasal Ranger® Field Olfactometer is the “state-of-the-art” in field olfactometry for confidently measuring and quantifying odor strength in the ambient air. The Nasal Ranger® Field Olfactometer, a portable odor detecting and measuring device, determines ambient odor “Dilution-to-Threshold” (D/T) values objectively.

Field olfactometry can be used as a proactive monitoring or enforcement tool for confident odor measurement at property lines and in the neighboring community. Quantifying ambient odor is often needed for the following purposes:

1. Monitoring daily operations (i.e. management performance evaluations),
2. Comparison of operating practices (i.e. evaluating alternatives),
3. Documenting specific events or episodes (i.e. defensible, credible evidence),
4. Monitoring compliance (i.e. compliance assurance for permits),
5. Determination of compliance (i.e. permit renewal),
6. Determination of status (i.e. baseline data for expansion planning),
7. Investigation of odor control effectiveness (i.e. scientific testing),
8. Verification of odor dispersion modeling (i.e. model calibration),
9. Determination of specific odor sources (i.e. investigation of complaints),
10. Verification of complaints (i.e. notice of violation).

The Nasal Ranger® Field Olfactometer, as a nasal organoleptic instrument, provides field olfactometry with a scientific method for dependable ambient odor quantification.

In 1958 the U.S. Public Health Service sponsored the development of an instrument and procedure for **field olfactometry** (ambient odor strength measurement) through Project Grants A-58-541, A-59-541, and A-60-541. The Barnebey-Cheney Company originally manufactured a field olfactometer instrument based on these grants, known as a “scentometer”.

A Nasal Ranger® Field Olfactometer creates a calibrated series of discrete dilutions by mixing the odorous ambient air with odor-free (carbon) filtered air. Field olfactometry defines each discrete dilution level as a “Dilution-to-Threshold,” **D/T**, ratio. The “Dilution-to-Threshold” ratio is a measure of the number of dilutions needed to make the odorous ambient air “non-detectable”.

Field olfactometry calculates the “**Dilution-to-Threshold**” (D/T) ratio as:

$$\text{D/T} = \frac{\text{Volume of Carbon-Filtered Air}}{\text{Volume of Odorous Air}}$$

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COMPONENT DIAGRAM



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SAFETY AND MAINTENANCE

The Nasal Ranger® Field Olfactometer is a safe and effective means to quantify odor strength in terms of “Dilution-to-Threshold” (D/T) ratios. Facility operators, community inspectors, and neighborhood citizens can use this instrument to monitor ambient odor strength at specific locations within or around a facility’s property line and within the community.

Please refer to pages 4-7 of this manual for proper operating procedures.

Safety precautions:

- Be familiar with your surroundings before using the Nasal Ranger® Field Olfactometer.
- Obtain proper permission to use the Nasal Ranger® Field Olfactometer at the desired locations.
- The Nasal Ranger® Field Olfactometer and its related products should not be used for purposes other than its intended purpose.
- The Nasal Ranger® Field Olfactometer is not to be used as a respirator for the reduction or elimination of hazardous chemicals in the air.
- You should not use the Nasal Ranger® Field Olfactometer in atmospheres where contaminant concentrations are unknown, immediately dangerous to life/health, or exceed applicable local standards.
- You should not use the Nasal Ranger® Field Olfactometer in atmospheres that contain less than 19.5% oxygen.
- The Nasal Ranger® Field Olfactometer should not be misused, altered, disassembled, neglected or handled carelessly.
- Use the Nasal Ranger® Field Olfactometer in a stationary position, do not walk or move around with the unit held up to your nose. Remove the unit from your nose before moving to the next measurement location.
- The Nasal Mask is fragile and can break if dropped onto a hard surface. If the Nasal Mask was to become cracked or broken, do not use. Usage of a broken mask could cause injury to face. Discard the broken mask and replace with a new mask.

If a defect with the Nasal Ranger® Field Olfactometer should appear during the warranty period, please refer to the *Warranty Service Procedure* section of the *Sales Terms and Conditions* (pg.13).

Maintenance:

- Comfort Seals should be changed frequently.
- Cartridges (see pg.10).
- Mask should be cleaned with Isopropyl alcohol wipes (also see pg.10).
- Mask o-rings should be changed when necessary.
- Barrel should be cleaned with barrel brush when visible debris is present.
 - To clean barrel, follow these simple steps:
 - 1. Turn dial to blank position.
 - 2. Take mask off.
 - 3. Lightly insert brush through barrel at the mask end until it reaches the D/T dial.
 - 4. Pull brush out giving slight twist.

Be sure to register your Nasal Ranger® Field Olfactometer on-line at www.NasalRanger.com or by completing the Registration Form (pg.22) and faxing or mailing the form as instructed. Your registration will allow us to better serve you with product updates and important information regarding your Nasal Ranger® Field Olfactometer.

If you have any questions about proper usage and safety regarding the Nasal Ranger® Field Olfactometer, please send an e-mail to info@nasalranger.com or call St. Croix Sensory, Inc. at 1-800-879-9231 (+651-439-0177).