

Remediation, Assessment & Industrial Testing



EnSys

EnSys *RDX* *Soil Test System*

Features

- detects RDX, HMX and related explosives compounds in soil samples
- provides quantitative results
- convenient and rapid testing in the field or lab, with results in about 30 minutes
- sample extractions may be performed simultaneously, with analysis in singlicate
- based on method developed by Dr. Thomas Jenkins at USACE - CRREL (non-immunoassay method)
- can test soil sample extracts from SDI's EnSys TNT test
- training recommended
- EPA SW-846 Method # 8510 (proposed status, Final with 4th Update)



Test Result Type

- Quantitative.

Samples per Kit

- 20 soil samples.

Assay Range

- 1 ppm to 30 ppm Total RDX in soil.
- Higher sample concentrations can be quantified by sample extract dilution.

Sample Preparation

- Soil samples require extraction using the included extraction components and user supplied acetone.
- Soil samples should be dried prior to analysis.
- Soil sample extracts from SDI's TNT Soil Test Kit may be used.



Sampling Time

- "Dirt-to-Data" in approximately 30 minutes.
- Typically, about 6 samples can be run in about one hour.
- Soil extraction time is typically 2-10 minutes per sample plus test run time of approximately 20 minutes.

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Basic Test Procedures

- Clean cuvettes and set spectrophotometer.
- Extract soil sample:
 - weigh 10 grams of soil sample in weigh boat
 - measure 50 mL acetone into 50 mL tube
 - pour acetone into extraction jar
 - add acetone and shake for 3 minutes
 - allow to settle for 5 minutes
- Draw into a syringe 5.5 mL of liquid from above the sediment layer in extraction jar.
- Attach filter tip to syringe and transfer 5 mL of sample extract into a 13 mL tube.
- (Note: If nitrate/nitrite interferents are present, attach an Alumina-A cartridge to the syringe, and dispense through this.)
- Cut open an Acetic Acid bulb and add contents to the 13 mL tube. Cap and shake.
- Cut open a NitriVer pillow and add it to a 50 mL reaction vial containing water.
- Remove plunger from 5cc zinc syringe, pour 13 mL tube contents into it, replace & invert.
- Rapidly filter the solution into the 50 mL reaction vial, cap and shake for 30 seconds.
- Incubate for 15 minutes for color development, and transfer contents to 30 mL syringe barrel. Attach syringe filter and dispense into spectrophotometer cuvette.
- Place cuvette in spectrophotometer and record absorbance.
- Calculate results.

Specificity

The EnSys RDX test is specific for RDX, HMX and related explosives compounds and exhibits the following sensitivities. The RDX test does not measure TNT, TNB, or DNB.

Compound	MDL Soil (ppm)
RDX	0.8
HMX	2.4
PETN	1.0
nitroglycerine	8.9
nitroguanadine	10.1
nitrocellulose	42.2

Test Kit Components

- 20 weigh boats & wooden spatulas.
- 20 extraction jars.
- 1 - 50 mL graduated tube.
- 20 - 50 mL reaction vials w/ H₂O.
- 20 - 5cc zinc syringes.
- 20 - 10cc, 20cc, & 30cc syringes.
- 20 - 13 mL tubes.
- 20 NitriVer pillows.
- 20 Acetic Acid bulb pipets.
- 40 syringe filters.
- 1 bulb pipet.
- 1 RDX control vial & ampule cracker.
- 2 cuvette stopper plugs.
- Test Kit instructions.

Storage & Precautions

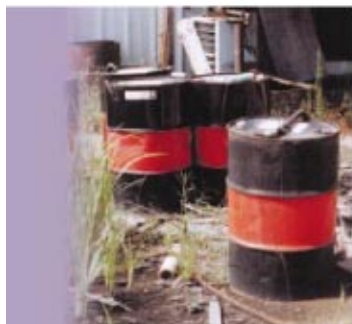
- Shelf life is typically one year from date of manufacture, with lot specific kit expiration date information provided on product packaging.
- Storage at ambient temperature 64° to 81°F (18° to 27°C) is acceptable.
- Operate kit at greater than 4°C/40°F and less than 39°C/100°F.

Other Required Materials

	<u>SDI Part #</u>
Ensys TNT Accessory Kit (Rental) (includes HACH DR/2000 or 2010)	69997
Acetone: hardware or laboratory grade (minimum of 50 mL per sample)	
Alumina A cartridges (if nitrate/nitrite interferents present)	60212
Scissors	
Tap or laboratory grade water for cuvette rinsing	
Marking pen, Calculator	
Absorbent paper	
Liquid waste container	
PPE: Disposable gloves, Eyewear	

Ordering Information

	<u>SDI Part #</u>
EnSys RDX Explosives Soil Test Kit (with extraction jars)	70850
EnSys RDX Explosives Soil Test Kit (without extraction jars)	70851
EnSys TNT Explosives Soil Test Kit	70020
TNT Ensys Accessory Kit (Rental) (with HACH DR/2000 or 2010)	69997



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