

# Wet Sieve Analysis Kit

## Instruction Manual



**Manual No. 102119255, Revision A**

**Instrument No. 206628**

**fann**<sup>®</sup>

Fann Instrument Company

## Wet Sieve Analysis Kit Instruction Manual

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## 1 Introduction

The Wet Sieve Analysis Kit is a test kit for measuring particle size and distribution of materials used in drilling fluids, such as barite or bentonite. Wet sieving produces better quality separation for some materials than dry sieving.

The wet sieve analysis follows API Specification 13A, Specification for Drilling Fluids and Materials. Both sieves meet the requirements for design and construction as described in ASTM E11, Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves.

### 1.1 Document Conventions

The following icons are used in this manual to distinguish elements of text.



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Notes emphasize additional information that may be useful to the reader.

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Caution messages give directions that, if not observed, could result in loss of data or in damage to equipment.

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**Describes an unsafe condition or practice that if not corrected, will result in personal injury, possibly death.**

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## **2 Safety**

Safe laboratory practices and procedures should be observed while operating and maintaining the Wet Sieve Analysis Kit.

Wear appropriate personal protective equipment (PPE).

### 3 Features and Specifications

The Wet Sieve Analysis Kit contains two sieves, a spray wash assembly, and flow pressure regulator. See Figure 3-1.

This test kit conforms to API Specification 13A. Its sieves meet specifications in ASTM E11. The sieve sizes are

- US Standard 200 Mesh, 75  $\mu\text{m}$
- US Standard 300 Mesh, 45  $\mu\text{m}$

The complete system contains all the components required for a connection to a water source. The flow pressure regulator is rated for 125 to 200 psig inlet pressure. The outlet pressure is adjustable from 0 to 15 psig. A low pressure 3-ft hose with a spray nozzle is included. The spray nozzle has a number TG 6.5 tip with a 1/4 TT body and is attached to the hose with a 1/4 FNPT stainless steel 90° elbow. This spray assembly is recommended in the API SPEC 13A.



Figure 3-1 Wet Sieve Analysis Kit

## 4 Procedure

This test procedure requires additional equipment that is not included in the kit. These items are usually available in the laboratory:

- Drying oven
- Dessicator
- Evaporating dish
- Mixing container (at least 500 ml capacity)
- Collection container (at least 500 ml capacity)
- Mixer
- Wash bottle containing water

Perform the wet sieve analysis as follows:

1. Weigh the dry sample into a mixing container. Use these amounts for the corresponding samples:
  - Barite, 50 g
  - Haematite, 50 g
  - Bentonite, 10 g
  - Attapulgate, 10 g
  - Sepiolite, 10 g
2. Prepare the dispersant solution. Add about 0.2 g of sodium hexametaphosphate to 350 ml of water.
3. Mix the sample and the dispersant solution in the mixing container – 5 minutes for barite and haematite; 30 minutes for bentonite, attapulgate, and sepiolite.
4. Pour the sample mixture onto the screen. Use wash water in the bottle to rinse any residual sample from the container and onto the screen.
5. Connect the spray assembly to your water source and turn on the water.
6. Using the spray nozzle, wash the material on the screen at 10 psi (69 kPa) for 2 minutes. Make sure that the spray nozzle tip rests on the rim of the sieve and that the spray of water moves repeatedly over the screen.
7. After the wash is complete (2 minutes), transfer the residue from the sieve into a tared evaporating dish. Use wash water in the bottle to rinse any residual sample from the screen.

8. Let the material settle, and then decant excess clear water.
9. Dry the residue in the oven, and then cool in a dessicator.
10. Weigh the residue.
11. Calculate the residue of material greater than the sieve's particle size (45µm or 75 µm) using this equation:

$$\% \text{ Retained} = \left( \frac{\text{mass retained}}{\text{mass total}} \right) \times 100$$

where

mass retained is the sample left on screen (dry) in grams

mass total is the sample mass

You may also calculate the percentage of material that passed through the screen as follows:

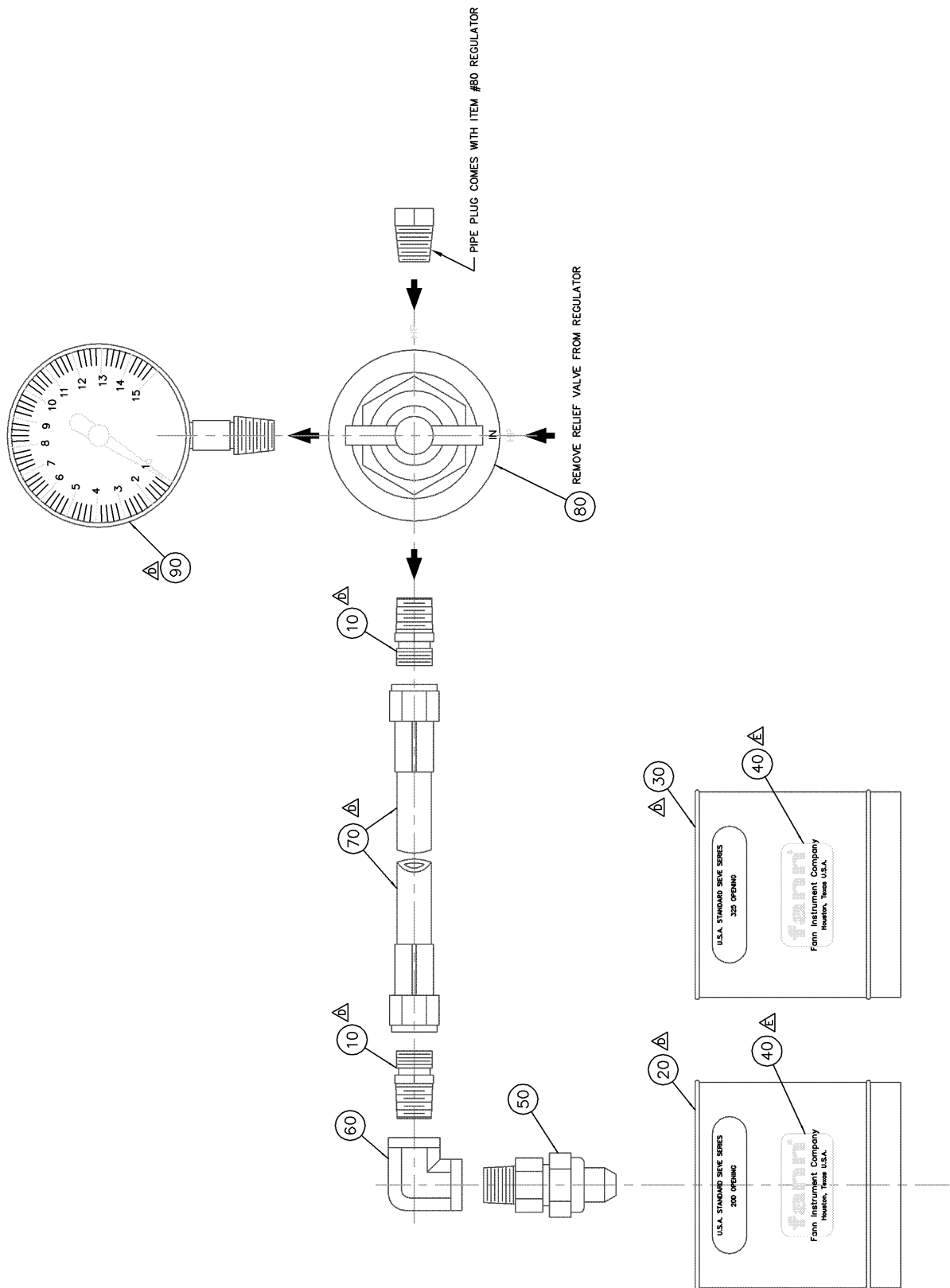
$$\% \text{ Passing} = 100 - \% \text{ Retained}$$



## 5 Parts List

**Table 5-1 Wet Sieve Analysis Kit, P/N 206628, Revision E**

<b>Item No.</b>	<b>Part No.</b>	<b>Quantity</b>	<b>Description</b>
0010	208059	2	HEX NIPPLE 1/4 NPT SS WITH 30 DEGREE TAPER
0020	206632	1	SIEVE US STANDARD 200 MESH 75 MICROMETER
0030	206633	1	SIEVE US STANDARD 325 MESH, 45 MICROMETER
0040	204577	2	LABEL
0050	208851	1	SPRAY NOZZLE, SPRAYING SYSTEMS COMPANY No. TG 6.5 TIP with 1/4 TT BODY
0060	208852	1	ELBOW 1/4 FNPT, STAINLESS STEEL
0070	207929	1	LOW PRESSURE AIR HOSE, 3 FT
0080	207196	1	REGULATOR, 125-200 PSI
0090	204146	1	GAUGE 15 PSI, 2.5in. DIAL 1/4 BOTTOM CONNECTOR



**Figure 5-1 Spray Wash Assembly and Flow Pressure Regulator**

## **6 Warranty and Returns**

### **6.1 Warranty**

Fann Instrument Company warrants its products to be free from defects in material and workmanship for a period of 12 months from the time of shipment. If repair or adjustment is necessary, and has not been the result of abuse or misuse within the twelve-month period, please return, freight prepaid, and correction of the defect will be made without charge.

Out of warranty products will be repaired for a nominal charge.

Please refer to the accompanying warranty statement enclosed with the product.

### **6.2 Returns**

For your protection, items being returned must be carefully packed to prevent damage in shipment and insured against possible damage or loss. Fann will not be responsible for damage resulting from careless or insufficient packing.

Before returning items for any reason, authorization must be obtained from Fann Instrument Company. When applying for authorization, please include information regarding the reason the items are to be returned.

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