

KES

Method for Determination of
Specific Gravity of Fuel Gas

KES T – L363

(EST.) 1990 – 11 – 23

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Quoted Standard



1. Scope of Application

This standard shall specify the method for determination of specific gravity of fuel gas and natural gas. But, does not apply in liquefied petroleum gas and liquefied natural gas.

Note ⁽¹⁾/⁽²⁾ About having same volume for gas and dry air in quantity of matter of liquefied petroleum gas on same temperature and pressure regulates from KS M 2150 [Liquefied petroleum gas (LPG)].

Remarks : The unit and the numerical value that are marked with { }, are from an international unit(SI) to set forth with reference.

2. Method for Collecting Sample Gas

The methods for collecting sample gas are as follows.

2.1 General Matter

2.1.1 The collected sample of gas pipe, conduit, radiator, and liquid condensation trap, filter, decompression device, valve etc. for sample gas tool, equipment of absorption etc. transpose to sample gas before.

2.1.2 The sample gas of flow rate and amount of collection should follow the regulation of method for testing.

2.1.3 Use absorption pump or booster pump if having trouble collecting amount needed or regulated capacity due to the pressure of sample gas being low.

2.2 The equipment of collecting sample gas

The formation for the equipment of collecting sample gas is as shown on Picture 1.

Process the sample gas depends on the condition of sample gas on each step.

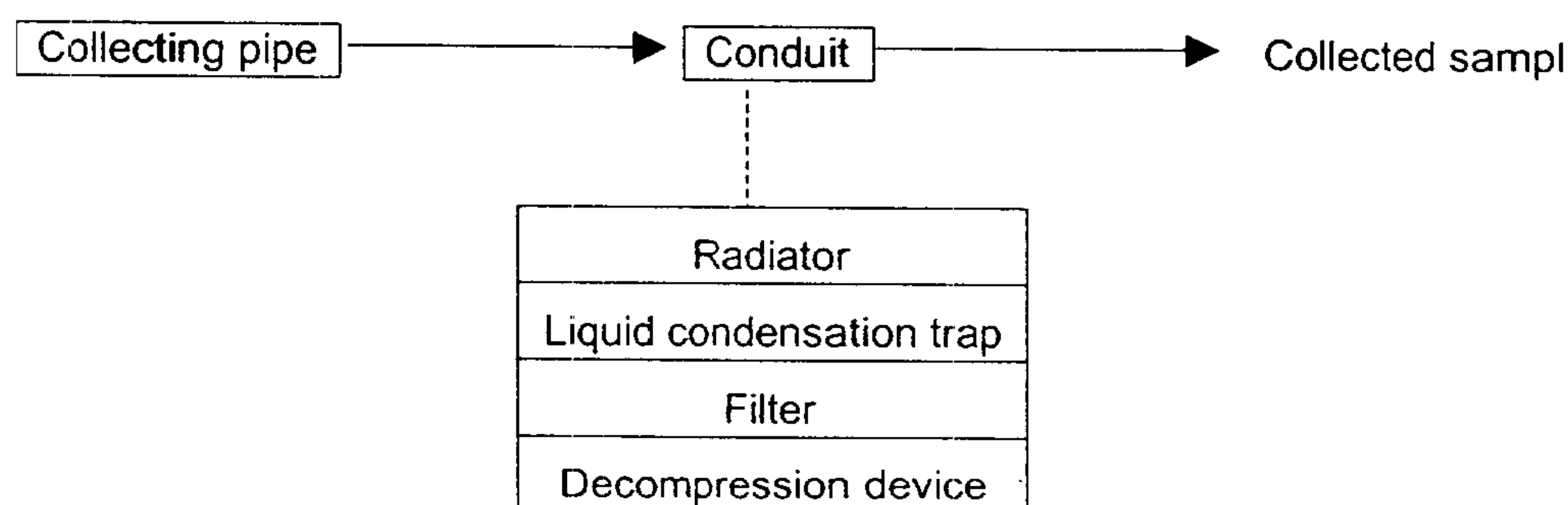


Fig. 1. The equipment of collecting sample gas

2.2.1 Install liquid condensation trap in conduit if humidity of sample gas have chance to condense.

2.2.2 Install filter in conduit or collecting pipe to include tar, dirt etc. for sample gas.

2.2.3 Install radiator in between the conduit when collecting sample gas on the high level.

2.2.4 Install decompression device to avoid condensation of moisturizing or ingredient from fastening of cold in adiabatic expansion and safety from falling when collecting the sample gas in high voltage area.

2.3 Collection of sample gas.

2.3.1 The sample gas should be represented gas for testing.

2.3.2 The location of collecting sample gas should be the point where density is same in the section of flow of gas by avoiding the meeting point of gas.

2.3.3 Move collected sample gas through conduit to gravimeter or measuring equipment of specific gravity. However, it is better to move to measuring equipment of specific gravity in measuring a specific gravity bottle method after collecting as shown on Picture 2. Order to measure the specific gravity in measuring a specific gravity bottle method, use injector method to induce the sample gas.

Note (³) Without assimilating or absorbing gas content, which volume is more than 11, in a gas collection bag in Figure 2, use plastic film products made of non-transmitted polyethylene kind resin, fluorine kind resin, etc.

Note (⁴) Using a syringe-type sample collector as in Figure 3, pull the inner cylinder to obtain the sample gas by induction. At a mouth of the grinded syringe, coat small amount of grease for a use in water, which does not have a matter of worry to assimilating carbon hydrate.

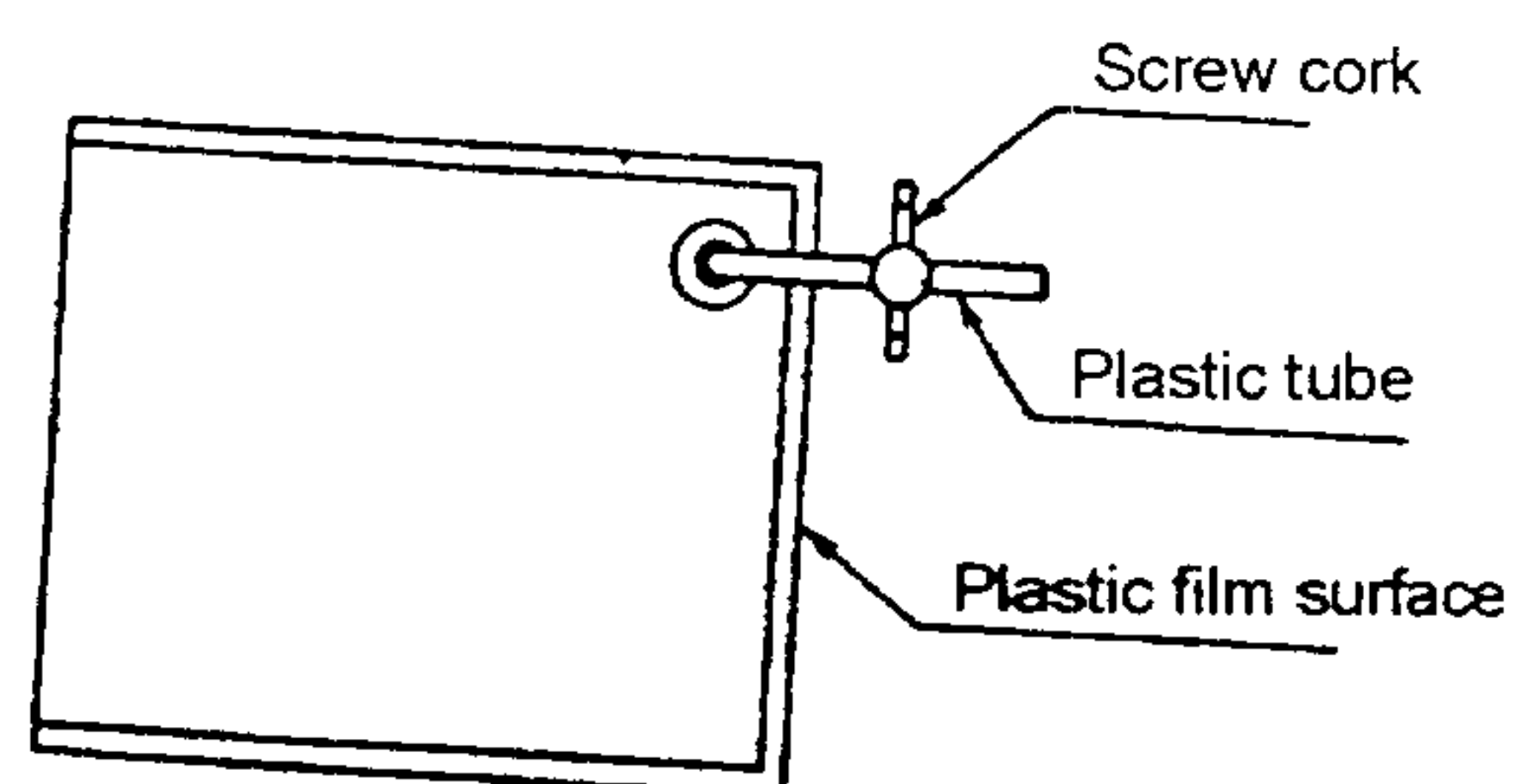


Fig. 2. Gas collection bag

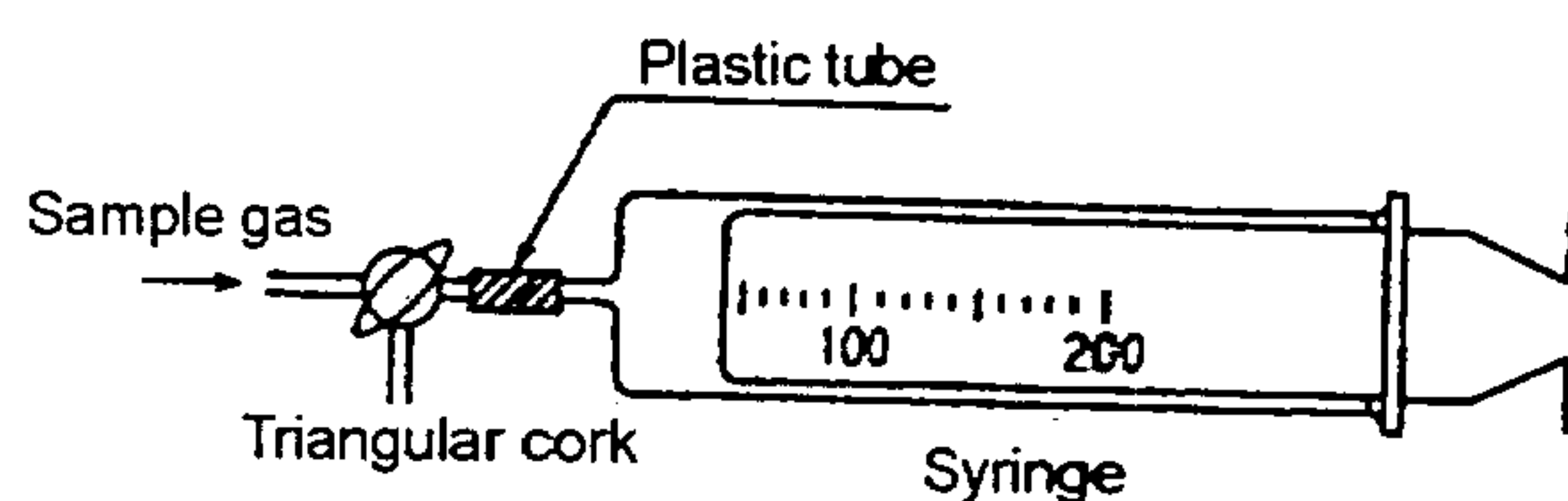


Fig. 3. Injecting sample collector

3. Method for measurement

Measure specific gravity with Bunsen sealing method Bunsen sealing method (Outflow method) or a specific gravity bottle method.

3.1 Bunsen sealing method Bunsen sealing method (Outflow method)

3.1.1 Abstract

With a Bunsen sealing-type specific gravity meter, flow out the sample gas to a small hole, flow out the air by the same method, and calculate the ratio of the gas by flowing out period of each.

3.1.2 Device

Devices are as follows.

(1) Gravimeter of Bunsen sealing

It structured and sized like Picture 4 and important part is covered with glass.

(2) Thermometer