

No. 214.

*Rules and Regulations made by the Governor in Council on the 15th day of March, 1906, in relation to Petroleum in Cases under the provisions of Section 6 of the Dangerous Goods Ordinance, 1873, (No. 1 of 1873).*

CASE OIL.

1. In these Rules the words "Case Oil" shall mean Petroleum and any product of Petroleum (including naphtha and naphtha products) contained in tins or other cases, but shall not include—

(i.) Lubricating Oils, or

(ii.) Petroleum, or any product of Petroleum which, having been tested by the Government Analyst, or other similar officer of this or any other British Colony or Possession, has been certified by him to give off an inflammable vapour at a temperature of not less than 150° Fahrenheit when tested in the manner laid down in the Schedule hereto.

2. Every vessel arriving at any port in this Colony having on board case oil, and any vessel being about to take on board such oil shall hoist a red flag at her fore-truck, and the flags T.H.E. of the international code (signifying "Petroleum Oil") at her main truck, and shall keep such flags flying during the hours of daylight whilst any case oil is on board, and thereafter until the Harbour Master is satisfied that the holds are clean and ventilated, and, during the same period, every such vessel shall by night display two red lights vertically, where best seen, and at a height of not less than twenty feet above the deck.

3. Every vessel having on board case oil shall anchor in one of the prescribed Dangerous Goods Anchorages and shall obtain permission from the Harbour Master before going alongside any wharf, or shifting berth.

4. The Master of every vessel having on board case oil shall, on entering his vessel at the Harbour Office in addition to furnishing a true copy of the manifest (as required by Section 8 of the Dangerous Goods Ordinance, 1873) declare, in writing to the Harbour Master—

(a.) The number of cases on board.

(b.) The nature and quality of the oil, and whether it is covered by any, and what certificate from the port of shipment, or any intermediate port of call, as to the temperature at which the oil flashes.

5. If the master of any vessel having on board case oil produces to the Harbour Master a certificate or certificates under the hand of the Government Analyst or other similar officer of this or any other British Colony or Possession, or from any analyst at the place of origin and attested by the British Consul at the port of shipment, that the Petroleum on board his vessel does not give off an inflammable vapour at a temperature of less than 73° Fahrenheit when tested in the manner set forth in the Schedule hereto, and makes a statutory declaration that all the Petroleum on board is covered by such certificate or certificates and was part of the Petroleum, samples whereof were tested at the port or place named in the certificate, the Harbour Master may give permission for the vessel to at once proceed to one of the prescribed wharves and discharge Petroleum. If, however, such certificate or certificates is or are to the effect that such Petroleum does not give off an inflammable vapour at a temperature of less than 150° Fahrenheit, when tested in the manner set forth in the Schedule hereto, and the master of such vessel makes a statutory declaration that all the Petroleum on board is covered by such certificate or certificates and was part of the Petroleum samples whereof were tested at the port or place named in the certificate, then and in such case the Harbour Master may give permission for the vessel to proceed to her anchorage and she shall no longer be treated as a vessel having on board dangerous goods under these Rules and Regulations.

Interpretation.

Flags and Lights.

Position to be taken up by vessel with case oil on board.

Master to declare cargo.

Powers of Harbour Master on production to him of certificate as to flashing point.

Powers of  
Harbour  
Master as to  
naphtha.

6. If the declaration made by the Master under Rule 4 shews that the case oil on board his vessel consists of naphtha or naphtha products, the Harbour Master shall satisfy himself that the oil is so packed in strong hermetically sealed metal drums (each containing not more than 10 gallons) or in hermetically sealed tins furnished with screw-top outlets each containing not more than four gallons (such drums or tins being so filled as to leave an air space equal to at least  $\frac{1}{20}$ th the capacity of each drum or tin, so as to allow room for expansion of the liquid consequent upon changes of temperature), that it may be safely transported by water and land, and upon being so satisfied may give permission for the vessel either to discharge such cargo in one of the prescribed dangerous goods anchorages or to proceed to one of the prescribed wharves and there deliver the oil to the person authorised to receive the same. Before giving such permission the Harbour Master may require the Master of the vessel to procure a report from the Government Analyst as to the nature of the oil.

Where no  
certificate of  
flashing  
point pro-  
duced.

7. (1.) When the Master of a vessel having on board case oil shall have made the declaration provided for in rule 4 but shall not have produced any such certificate as provided in Rule 5, or obtained permission to discharge under Rule 6, the Harbour Master may cause an officer of his Department to go on board such vessel to obtain samples from one out of every 5,000 cases or fraction of 5,000 cases, for analysis by the Government Analyst.

Master to  
deliver  
samples.

(2.) The Master shall forthwith deliver such samples to the officer aforesaid, without charge; and the samples shall be taken under the personal supervision of the officer aforesaid, in the presence of the Master or Chief Officer of the vessel. Each sample shall consist of about 20 fluid ounces, and shall be rapidly transferred from the selected case into a separate bottle provided by such officer.

Transmission  
of samples to  
Government  
Analyst.

(3.) When the samples have been delivered to the said officer he shall fasten up, and secure the bottles containing them and shall label such bottles with the name of the vessel, and such other distinguishing marks as may be necessary, in the presence of the Master or Chief Officer of the ship. The Harbour Master shall cause the samples to be forwarded to the Government Analyst.

Government  
Analyst to  
test samples.

(4.) The Government Analyst shall test the samples thus received in the manner laid down in the Schedule hereto and shall, as soon as practicable, give a certificate of the temperature at which the samples were found to give off an inflammable vapour and shall forward such certificate to the Harbour Master.

Fee for  
testing.

(5.) The fee for testing shall be five dollars for a single sample, and for more than one sample taken at the same time \$2.50 for each sample; such fees shall be paid into the Colonial Treasury by the Master of the vessel.

When vessel  
not allowed  
to discharge.

(6.) If the certificate of the Government Analyst certifies that one or more samples from any vessel consist of oil flashing at a temperature of less than 73° Fahrenheit when tested in the manner set forth in the Schedule hereto, such vessel shall not be permitted to discharge unless either a permit has been issued under Rule 6, or a permit to tranship such oil for export is obtained, and in the absence of any such permit such vessel shall forthwith leave the waters of the Colony. A permit to tranship oil flashing at a temperature of less than 73° Fahrenheit may be issued by the Harbour Master upon the Master or Agent giving an undertaking to his satisfaction that such oil shall not be landed in the Colony, and every such transhipment shall take place without delay in one of the prescribed Dangerous Goods Anchorages, and the vessel receiving such oil shall immediately leave the waters of the Colony direct from such anchorage. If a vessel is carrying both oil which flashes at a temperature of less than 73° Fahrenheit and oil which flashes at a higher temperature she shall discharge the latter oil in one of the prescribed Dangerous Goods Anchorages, and shall then leave the waters of the Colony direct unless a permit to discharge or tranship has been obtained in manner above mentioned.

Vessel with  
certain  
quality of  
Petroleum  
no longer  
treated as  
having dan-  
gerous goods  
on board.

(7.) If the certificate of the Government Analyst certifies that all the samples taken from a vessel having on board case-oil consist of Petroleum flashing at a temperature of not less than 150° Fahrenheit when tested in the manner set forth in the Schedule hereto, then upon the payment of the said fees and obtaining from the Harbour Master permission to proceed to her anchorage, such vessel shall no longer be treated as a vessel having dangerous goods on board.

8. The Standard Oil Wharf at Lap-Sap-Wan, the Royal Dutch Petroleum Company's Wharf at North Point, Messrs. Arnhold, Karberg and Company's Wharf at Tai-Kok-Tsui and such other places (if any) as the Governor-in-Council may by notification in the Gazette appoint, shall be the places to which vessels having or being about to take on board, case oil, may proceed, with the permission of the Harbour Master. Otherwise such case oil must be discharged or taken in, in one of the Dangerous Goods Anchorages.

Places for discharging or taking on board case oil.

9. No case containing case oil in a leaky or damaged condition shall be shipped or transhipped in any Port in this Colony, and should any such leakage be found to have taken place from cases already shipped on board of any vessel, it shall be lawful for the Harbour Master to cause such vessel to be removed, at the expense of the owner, agent or master thereof, to such place as he may deem necessary to safeguard the interests of the Harbour.

Leaky cases prohibited.

10. During the landing, shipment or transhipment of case oil, it shall be lawful for the Captain Superintendent of Police to place a Police guard over the same, such guard to be maintained at the expense of the owner, agent or master of the vessel.

Placing of Police guard.

11. No discharge of case oil, whether mixed with water or not, shall be permitted into the harbour from any ship or boat, lighter or vessel or from any premises or place on shore.

Throwing of Petroleum into the Harbour forbidden.

12. Any vessel having on board more than 10,000 gallons of naphtha or naphtha products shall be ordered by the Harbour Master to leave the waters of the Colony without delay.

Vessel with more than 10,000 gallons of naphtha to leave Colony.

13. After the discharge of case oil, the vessel, unless she at once goes to sea, shall remain at, or proceed without delay to, one of the Dangerous Goods Anchorages, and shall not remove therefrom until all her holds which have contained case oil shall have been thoroughly cleansed and ventilated by the removal of all oil and vapour, unless the special permission of the Harbour Master has been obtained, except for the purpose of proceeding to sea, or through stress of weather.

Cleansing and ventilation after discharge.

14. The Rules and Regulations made by the Governor in Council on the 28th day of December, 1900, in relation to the import into the Colony of petroleum in cases and all amendments thereof and additions thereto subsequently made are hereby repealed.

Repeal of previous Rules.

### THE SCHEDULE.

#### NATURE OF THE TEST APPARATUS.

The apparatus is known as the Abel Petroleum Tester and consists of the following parts:—

1. The oil-cup;
2. The cover, with slide test-lamp and clockwork arrangement for opening and closing the holes in the cover and for dipping the test flame;
3. The water-bath or heating vessel;
4. The tripod stand, with jacket and spirit lamp for heating the water-bath;
5. The thermometer for indicating the temperature of the oil in the oil-cup;
6. The thermometer for indicating the temperature of the water in the water-bath;
7. The thermometer for indicating the temperature of the oil before it is poured into the oil-cup;
8. The dropping bottle or *pipette* for replenishing the test-lamp; and
9. A barometer.

The oil-cup is a cylindrical flat-bottomed vessel, made of gun-metal or brass, and tinned or silvered inside. A gauge is fixed to the inside of the cup to regulate the height to which it is to be filled with the sample under examination.

The cup is provided with a close-fitting overlapping cover, which carries the thermometer, the test-lamp, and the adjuncts thereto. The test-lamp is suspended upon two supports by means of trunnions, which allow it to be easily inclined to a particular angle and restored to its original position. The socket in the cover, which is to hold a round bulb thermometer for indicating the temperature of the oil during the testing operation, is so adjusted that the bulb of the latter is always inserted in a definite position below the surface of the liquid.

The cover is provided with three holes, one in the centre and two smaller ones close to the sides. These are closed and opened by means of a pivoted slide. When the slide is moved so as to uncover the holes, the suspended lamp is caught by a projection fixed on the slide, and tilted in such a way as to bring the end of the spout just below the surface of the lid. As the slide moves back so as to cover the holes, the lamp returns to its original position. Upon the cover, in front of and in a line with the nozzle of the lamp, is fixed a white bead, the diameter of which represents the size of the test-flame to be used.

The water-bath or heating vessel is so constructed that, when the oil-cup is placed in position in it, an air-space or air-chamber intervenes between the two; consequently, in applying the test under ordinary circumstances, the heat is transmitted gradually to the oil from the hot water through the air-space. The water-bath is fitted with a socket for receiving a long bulb thermometer, to indicate the temperature of the water. It is also provided with a funnel, an over-flow-pipe, and two handles.

The water-bath rests upon a tripod stand, which is fitted with a copper cylinder or jacket, so that the bath is surrounded by an enclosed air-space, which retains and regulates the heat. One of the legs of the stand serves as a support for a spirit lamp, which is attached to it by a small swing bracket.

The clockwork arrangement, by which during the operation of testing the slide is withdrawn, and the test-flame dipped into the cup and raised again as the slide is replaced, is provided with a ratchet key for setting it in action for each test, and with a trigger for starting it each time that the test-flame is applied.

#### DIRECTIONS FOR PREPARING THE SAMPLE FOR TESTING.

PREPARING THE SAMPLE FOR TESTING.—About ten fluid ounces of the oil, sufficient for three tests, are transferred from the bottle into which the sample has been drawn to a pint flask or bottle, which is to be immersed in water artificially cooled until a thermometer, introduced into the oil, indicates a temperature not exceeding 50° Fahrenheit.

#### DIRECTIONS FOR PREPARING AND USING THE TEST APPARATUS.

1. PREPARING THE WATER-BATH.—The water-bath is filled by pouring water into the funnel until it begins to flow out at the overflow-pipe. The temperature of the water at the commencement of each test, as indicated by the long bulb thermometer, is to be 130° Fahrenheit and this is attained in the first instance by mixing hot and cold water, either in the bath or in a vessel from which the bath is filled, until the thermometer which is provided for testing the temperature of the water gives the proper indication; or the water is heated by means of the spirit-lamp (which is attached to the stand of the apparatus) until the required temperature is indicated.

2. PREPARING THE TEST-LAMP.—The test-lamp is fitted with a piece of cylindrical wick of such thickness that it fills the wick-holder, but may readily be moved to and fro for the purpose of adjusting the size of the flame. In the body of the lamp, upon the wick, which is coiled within it, is placed a small tuft of cotton wool moistened with petroleum, any oil not absorbed by the wool being removed. When the lamp has been lighted, the wick is adjusted by means of a pair of forceps, or a pin, until the flame is of the size of the bead fixed on the cover of the oil-cup; should a particular test occupy so long a time that the flame begins to get smaller, through the supply of oil in the lamp becoming exhausted, three or four drops of petroleum are allowed to fall upon the tuft of wool in the lamp from the dropping bottle or *pipette* provided for that purpose. This can be safely done without interrupting the test.

3. FILLING THE OIL-CUP.—Before the oil-cup is filled, the lid is to be made ready for being placed upon the cup, *i.e.*, the round bulb thermometer is to be inserted into the socket (so that the projecting rim of the collar with which it is fitted touches the edge of the socket), and the test-lamp is to be placed in position. The oil-cup, having been previously cooled by placing it bottom downwards in water at a temperature not exceeding 50° Fahrenheit, is now to be rapidly wiped dry, placed on a level surface in a good light, and the oil to be tested is poured in, without splashing, until its surface is level with the point of the gauge which is fitted in the cup. The lid is then put on the cup at once, and pressed down so that its edge rests on the rim of the cup.

4. APPLICATION OF THE TEST.—The water-bath, with its thermometer in position, is placed in some locality where it is not exposed to currents of air, and where the light is sufficiently subdued to admit of the size of the entire test-flame being compared with that of the bead on the cover. The cup is carefully lifted, without shaking it, and placed in the bath, the test-lamp is lighted, and the clockwork wound up by turning the key. The thermometer in the oil-cup is now watched, and when the temperature has reached 56° Fahrenheit the clockwork is set in motion by pressing the trigger.

If no flash takes place the clockwork is at once re-wound, and the trigger pressed at 57° Fahrenheit, and so on, at every degree rise of temperature, until the flash occurs, or until a temperature of 95° Fahrenheit has been reached.

If the flash takes place at any temperature below 77° Fahrenheit the temperature at which it occurs is to be recorded. The fresh portions of the sample are then to be successively tested in a similar manner and the results recorded. If no greater difference than 2° Fahrenheit exists between any two of the three recorded results, each result is to be corrected for atmospheric pressure, as hereafter described, and the average of the three corrected results is the flashing point of the sample. In the event of there being a greater difference than 2° Fahrenheit between any two of the results, the series of tests is to be rejected and a fresh series of three similarly obtained, and so on until a sufficiently concordant series is furnished, when the results are to be corrected and the average taken in the manner already described.

No flash which takes place within eight degrees of the temperature at which the testing is commenced shall be accepted as the true flashing point of the sample tested. In the event of a flash occurring at or below 64° when the test is applied in the manner above described, the next testing shall be commenced ten degrees lower than the temperature at which the flash had been previously obtained (that is to say, at 54° or thereunder) and this procedure shall be continued until the results of three consecutive tests do not show a greater difference than 2°.

If a temperature of 76° Fahrenheit has been reached without a flash occurring, the application of the test-flame is to be continued at every degree rise of temperature until a temperature of 95° Fahrenheit has been reached. If no flash has occurred up to this point, the tests shall not be continued, and the testing officer shall certify that the petroleum has a flashing point of over 95°. But if the petroleum is petroleum tar or petroleum fuel, and is declared to have its flashing point at or above 150°, the test shall be continued as follows:—The oil-cup is to be removed from the water-bath, and the temperature of the water in the water-bath is to be reduced to 95° Fahrenheit by pouring cold water into the funnel (the hot water escaping by the overflow-pipe). The air-chamber is then to be filled to a depth of 1½ inches with water at a temperature of about 95° Fahrenheit, the oil-cup is to be replaced in the water-bath, and the spirit-lamp, attached to the water-bath, is to be lighted and placed underneath. The test-flame is then to be again applied, from 96° Fahrenheit, at every degree rise of temperature as indicated by the thermometer in the oil-cup until a flash takes place, or until a temperature of 150° Fahrenheit has been reached. If during this operation the test-flame appears to diminish in size, the lamp is to be replenished in the manner prescribed (at 2) without interrupting the test.

If a flash occurs at any temperature between 76° and 150° Fahrenheit, the temperature at which it occurs subject to correction for atmospheric pressure, is the flashing point of the sample.

In repeating a test, a fresh sample of oil must always be used, the tested sample being thrown away, and the cup must be wiped dry from any adhering oil, and cooled, as already described, before receiving the fresh sample.

5. CORRECTION FOR ATMOSPHERIC PRESSURE.—As the flashing point of an oil is influenced by changes, in atmospheric pressure to an average extent of 1°·6 Fahrenheit for every inch of the barometer, a correction of the observed flashing point may become necessary. The true height of the barometer must, therefore, be determined at the time of making the test for the flashing point. To facilitate the correction of a flashing point for pressure a table is appended, giving the flashing points of oils ranging from 65° to 80° Fahrenheit, under pressures ranging from 27 to 31 inches of mercury.

The table is used in the following manner :—

EXAMPLE.—An oil has given a flashing point of 71°, the barometer being at 28·6; take the nearest number to 71° in the vertical column headed 28·6. This number is 70·8. Substitute for this the number in the same horizontal line in the column headed 30 (the normal height of barometer). The Substituted number, *i.e.*, the true flashing point of the oil, is 73°.

TABLE for correction of FLASHING POINTS indicated by the Test for Variation in Barometric Pressure on either side of Thirty Inches.

BAROMETER IN INCHES.																				
27	27·2	27·4	27·6	27·8	28	28·2	28·4	28·6	28·8	29	29·2	29·4	29·6	29·8	30	30·2	30·4	30·6	30·8	31
FLASHING POINTS IN DEGREES FAHRENHEIT.																				
60·2	60·5	60·8	61·2	61·5	61·8	62·1	62·4	62·8	63·1	63·4	63·7	64	64·4	64·7	65	65·3	65·6	66	66·3	66·6
61·2	61·5	61·8	62·2	62·5	62·8	63·1	63·4	63·8	64·1	64·4	64·7	65	65·4	65·7	66	66·3	66·6	67	67·3	67·6
62·2	62·5	62·8	63·2	63·5	63·8	64·1	64·4	64·8	65·1	65·4	65·7	66	66·4	66·7	67	67·3	67·6	68	68·3	68·6
63·2	63·5	63·8	64·2	64·5	64·8	65·1	65·4	65·8	66·1	66·4	66·7	67	67·4	67·7	68	68·3	68·6	69	69·3	69·6
64·2	64·5	64·8	65·2	65·5	65·8	66·1	66·4	66·8	67·1	67·4	67·7	68	68·4	68·7	69	69·3	69·6	70	70·3	70·6
65·2	65·5	65·8	66·2	66·5	66·8	67·1	67·4	67·8	68·1	68·4	68·7	69	69·4	69·7	70	70·3	70·6	71	71·3	71·6
66·2	66·5	66·8	67·2	67·5	67·8	68·1	68·4	68·8	69·1	69·4	69·7	70	70·4	70·7	71	71·3	71·6	72	72·3	72·6
67·2	67·5	67·8	68·2	68·5	68·8	69·1	69·4	69·8	70·1	70·4	70·7	71	71·4	71·7	72	72·3	72·6	73	73·3	73·6
68·2	68·5	68·8	69·2	69·5	69·8	70·1	70·4	70·8	71·1	71·4	71·7	72	72·4	72·7	73	73·3	73·6	74	74·3	74·6
69·2	69·5	69·8	70·2	70·5	70·8	71·1	71·4	71·8	72·1	72·4	72·7	73	73·4	73·7	74	74·3	74·6	75	75·3	75·6
70·2	70·5	70·8	71·2	71·5	71·8	72·1	72·4	72·8	73·1	73·4	73·7	74	74·4	74·7	75	75·3	75·6	76	76·3	76·6
71·2	71·5	71·8	72·2	72·5	72·8	73·1	73·4	73·8	74·1	74·4	74·7	75	75·4	75·7	76	76·3	76·6	77	77·3	77·6
72·2	72·5	72·8	73·2	73·5	73·8	74·1	74·4	74·8	75·1	75·4	75·7	76	76·4	76·7	77	77·3	77·6	78	78·3	78·6
73·2	73·5	73·8	74·2	74·5	74·8	75·1	75·4	75·8	76·1	76·4	76·7	77	77·4	77·7	78	78·3	78·6	79	79·3	79·6
74·2	74·5	74·8	75·2	75·5	75·8	76·1	76·4	76·8	77·1	77·4	77·7	78	78·4	78·7	79	79·3	79·6	80	80·3	80·6
75·2	75·5	75·8	76·2	76·5	76·8	77·1	77·4	77·8	78·1	78·4	78·7	79	79·4	79·7	80	80·3	80·6	81	81·3	81·6

A. G. M. FLETCHER,  
Clerk of Councils.

COUNCIL CHAMBER,  
15th March, 1906.