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1-GP-7
CANCELLATION
10 November 1955

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Specification
for

LIQUID PAINT DRIER, TYPES I AND II

CGSB Specification 1-GP-7, dated 9 January 1946 is cancelled
as of 10 November 1955.

REFERENCE COPY

No. 1-GP-7-1946.

Issued 9 January, 1946 *

Supersedes Issue of
8 August, 1940.

CANADIAN GOVERNMENT PURCHASING STANDARDS COMMITTEE

Specification for
Liquid Paint Drier, Types I and II.

1. Definition

The material required by this specification shall consist of a solution of organo-metallic salts in a suitable solvent, and shall have the property of accelerating the drying of paint vehicles.

2. General

The Drier, as received, shall be a mobile liquid free from sediment and suspended matter, and shall show no clotting or gelatinization.

Type I shall be for use particularly with white or light shades of paint. Type II shall be for use with dark colours.

3. Colour

(a) Type I Drier shall be of such colour that when 1 volume of Drier is mixed with 8 volumes of raw linseed oil (Specification No.1-GP-1), the resulting solution shall be not darker than No. 5, Union Colorimeter.

(b) There shall be no minimum colour requirement for Type II Drier.

Method 12.4

4. Flash Point

The flash point shall be not lower than 38° C.
(100° F.)

Method 3.1 or
3.2

* Issued in present form with no change in the requirements.

2.

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5. Composition of Ash

The Drier shall yield an ash which shall show on analysis, not less than 20 per cent by weight of lead (Pb), and not more than 35 per cent by weight of calcium oxide (CaO).

Method 52.1

6. Action with Linseed Oil

The Drier shall mix with raw linseed oil (Specification No. 1-GP-1) in the proportion of 1 volume of drier to 19 volumes of pure oil without curdling or precipitation.

Method 5.7

7. Drying Properties

The mixture prepared as in Clause 6, shall dry throughout in not more than 16 hours, and the dried film shall be free from wrinkles and other visible defects.

Method 5.7

8. Methods of Sampling and Testing

- (a) Sampling shall be carried out in accordance with section 1.1 of Schedule No. 1-GP-71: Methods of Testing Paints and Pigments.
- (b) The methods of testing shall in all cases be those described in the same Schedule, using the sections specified in each requirement.

Correspondence regarding this specification should be addressed to the Secretary, Canadian Government Purchasing Standards Committee, National Research Council, OTTAWA, Canada.

REFERENCE COPY

No. 1-GP-7-1940.

Issued 6 January, 1937.

Amended 8 August, 1940.

CANADIAN GOVERNMENT PURCHASING STANDARDS COMMITTEE

Specification for
Liquid Paint Drier, Types I and II

1. Definition

The material required by this specification shall consist of a solution of organo-metallic salts in a suitable solvent and shall have the property of accelerating the drying of paint vehicles to which it is added.

2. General

The drier, as received, shall be a mobile liquid free from sediment and suspended matter and shall show no clotting or gelatinization.

Type I shall be for use particularly with white or light shades of paint. Type II shall be for use with dark colours.

3. Colour

Drier of Type I shall be of such a colour that when mixed with raw linseed oil (Specification No. 1-GP-1) in the proportion of 1 volume of drier to 8 volumes of oil, the resulting solution shall not be darker than No. 5 as determined by the Union Colorimeter. There shall be no minimum requirement as to colour for drier of Type II.

(Appendix B)

4. Flash Point

The flash point shall not be lower than 38°C. (100°F.).
(Appendix C)

5. Composition of Ash

The drier shall yield an ash which shall show on analysis, not less than 20 per cent by weight of lead (Pb) and not more than 35 per cent by weight of calcium oxide (CaO).
(Appendix D)

6. Action with Linseed Oil

The drier shall mix with raw linseed oil (Specification No. 1-GP-1) in the proportion of 1 volume of drier to 19 volumes of pure oil without curdling and precipitation.
(Appendix E)

7. Drying Properties

The mixture prepared as in Clause 6 (1:19) shall dry throughout in not more than 16 hours and the dried film shall be free from wrinkles and other visible defects.
(Appendix E)

A P P E N D I XMethods of Sampling and TestingA. Sampling

A single unopened container, selected at random from each lot of 1000 containers or less, shall be supplied for test. When containers exceed one gallon capacity the sample may be procured by opening a container, thoroughly mixing its contents and withdrawing a specimen of not less than one pint which shall be placed immediately in an air-tight can completely filling it. Containers to be sampled shall be thoroughly agitated by stirring prior to withdrawal of the specimen.

B. Colour

A 5 cc. portion of the drier is mixed with 40 cc. of raw linseed oil and the colour of the mixture is determined in the Union Colorimeter in accordance with Procedure D155-39T of the American Society for Testing Materials (A.S.T.M.).

C. Flash Point

The flash point shall be determined by means of a closed cup in accordance with A.S.T.M. Procedure D56-36.

D. Composition of Ash

About 10 cc. of the drier is placed in a porcelain dish and ignited. The residue is ashed at a temperature not exceeding 600°C., in a muffle. A weighed portion of the ash 0.2 to 0.3 gm. is dissolved in a slight excess of aqua regia (HCl:HNO₃::3:1) and the solution is evaporated to dryness to

eliminate nitrates. It is then taken up in 5 cc. of HCl (conc.), diluted to 100 cc. with water and boiled vigorously. The solution is filtered and the residue is washed. The filtrate, including washings, is diluted to 150 cc., and adjusted to an acidity not over 0.2N HCl. It is then boiled for a few minutes, and saturated with hydrogen sulphide.

The black precipitate is filtered off, washed with water containing a little hydrogen sulphide and dissolved in hot dilute HCl. Lead is then determined in accordance with the sulphate method in A.S.T.M. Procedure D215-37.

Calcium shall be determined in the filtrate from the sulphide precipitation in accordance with A.S.T.M. Procedure D215-37.

E. Action with Linseed Oil, and Drying Properties

A 5 cc. portion of the drier is mixed with 95 cc. of raw linseed oil complying with Specification No. 1-GP-1 and after 2 hours it is examined for curdling and precipitation. After standing a further period of at least 10 hours the drying time of the mixture is determined.

The sample is applied to a thoroughly cleaned, non-absorbent surface so as to form a dry film approximately 20 microns thick. The film is dried at a temperature of $25 \pm 2^{\circ}\text{C}$., a relative humidity of 60 ± 5 per cent and an illumination of 30 ± 5 foot candles. After about two hours, the film is tested at intervals with the finger at points not less than 2 cm. from the edges. The film is considered dry when it no longer adheres to the finger and does not rub up appreciably when the finger is lightly rubbed across the surface.

CONFIDENTIAL

No. 1-GP-7.

Issued 6 January, 1937.

Tentative Revision 1 August, 1940.

CANADIAN GOVERNMENT PURCHASING STANDARDS COMMITTEE

Specification for
Liquid Paint Drier, Types I and II

1. Definition

The material required by this specification shall consist of a solution of organo-metallic salts in a suitable solvent and shall have the property of accelerating the drying of paint vehicles to which it is added.

2. General

The drier, as received, shall be a mobile liquid free from sediment and suspended matter and shall show no clotting or gelatinization.

Type I shall be for use particularly with white or light shades of paint. Type II shall be for use with dark colours.

3. Colour

Drier of Type I shall be of such a colour that when mixed with raw linseed oil (Specification No. 1-GP-1) in the proportion of 1 volume of drier to 8 volumes of oil, the resulting solution shall not be darker than No. 5 as determined by the Union Colorimeter. There shall be no minimum requirement as to colour for drier of Type II. (Appendix B)

4. Flash Point

The flash point shall not be lower than 38°C. (100°F.) (Appendix C)

5. Composition of Ash

The drier shall yield an ash which shall show on analysis, not less than 20 per cent by weight of lead (Pb) and not more than 35 per cent by weight of calcium oxide (CaO). (Appendix D)

6. Action with Linseed Oil

The drier shall mix with raw linseed oil (Specification No. 1-GP-1) in the proportion of 1 volume of drier to 19 volumes of pure oil without curdling and precipitation.
(Appendix E)

7. Drying Properties

The mixture prepared as in Clause 6 (1:19) shall dry throughout in not more than 16 hours and the dried film shall be free from wrinkles and other visible defects.
(Appendix E)

A P P E N D I XMethods of Sampling and TestingA. Sampling

A single unopened container, selected at random from each lot of 1000 containers or less, shall be supplied for test. When containers exceed one gallon capacity the sample may be procured by opening a container, thoroughly mixing its contents and withdrawing a specimen of not less than one pint which shall be placed immediately in an air-tight can completely filling it. Containers to be sampled shall be thoroughly agitated by stirring prior to withdrawal of the specimen.

B. Colour

A 5 cc. portion of the drier is mixed with 40 cc. of raw linseed oil and the colour of the mixture is determined in the Union Colorimeter in accordance with Procedure D155-39T of the American Society for Testing Materials (A.S.T.M.).

C. Flash Point

The flash point shall be determined by means of a closed cup in accordance with A.S.T.M. Procedure D56-36.

D. Composition of Ash

About 10 cc. of the drier is placed in a porcelain dish and ignited. The residue is ashed at a temperature not exceeding 600°C., in a muffle. A weighed portion of the ash 0.2 to 0.3 gm. is dissolved in a slight excess of aqua regia (HCl:HNO₃::3:1) and the solution is evaporated to dryness to

eliminate nitrates. It is then taken up in 5 cc. of HCl (conc.), diluted to 100 cc. with water and boiled vigorously. The solution is filtered and the residue is washed. The filtrate, including washings, is diluted to 150 cc., and adjusted to an acidity not over 0.2N HCl. It is then boiled for a few minutes, and saturated with hydrogen sulphide.

The black precipitate is filtered off, washed with water containing a little hydrogen sulphide and dissolved in hot dilute HCl. Lead is then determined in accordance with the sulphate method in A.S.T.M. Procedure D215-37.

Calcium shall be determined in the filtrate from the sulphide precipitation in accordance with A.S.T.M. Procedure D215-37.

E. Action with Linseed Oil, and Drying Properties

A 5 cc. portion of the drier is mixed with 95 cc. of raw linseed oil complying with Specification No. 1-GP-1 and after 2 hours it is examined for curdling and precipitation. After standing a further period of at least 10 hours the drying time of the mixture is determined.

The sample is applied to a thoroughly cleaned, non-absorbent surface so as to form a dry film approximately 20 microns thick. The film is dried at a temperature of $25 \pm 2^{\circ}\text{C}.$, a relative humidity of 60 ± 5 per cent and an illumination of 30 ± 5 foot candles. After about two hours, the film is tested at intervals with the finger at points not less than 2 cm. from the edges. The film is considered dry when it no longer adheres to the finger and does not rub up appreciably when the finger is lightly rubbed across the surface.

No. 1-GP-7-1937.

Issued January 6, 1937.

Amended December 22, 1937.

CANADIAN GOVERNMENT PURCHASING STANDARDS COMMITTEE

Specification for
Liquid Paint Drier, Types I and II

1. Definition

The material required by this specification shall consist of a solution of organo-metallic salts in a suitable solvent and shall have the property of accelerating the drying of paint vehicles to which it is added.

2. General

The drier, as received, shall be a mobile liquid free from sediment and suspended matter and shall show no clotting or gelatinization. Type I shall be for use particularly with white or light shades of paint. Type II shall be for use with dark colours.

3. Colour

Drier of Type I shall be of such a colour that when mixed with raw linseed oil (Government Specification No. 1-GP-1) in the proportion of 1 volume of drier to 8 volumes of oil, the resulting solution shall not be darker than No. 5 when determined by the Union Colorimeter. There shall be no minimum requirement as to colour of Type II.

(Appendix B)

4. Flash Point

The flash point shall not be lower than 38°C. (100°F.). (Appendix C)

5. Composition of Ash

The drier shall yield an ash which shall show, on analysis, not less than 20% of lead calculated as metallic lead, and not more than 35% of lime calculated as CaO.

(Appendix D)

6. Action with Linseed Oil

The drier shall mix with pure raw linseed oil (Government Specification No. 1-GP-1) in the proportion of 1 volume of drier to 19 volumes of pure oil without curdling. (Appendix E)

7. Drying Properties

The mixture prepared as under Clause 6 (1:19) shall dry properly in not more than 10 nor less than 5 hours. (Appendix E)

A P P E N D I X

Methods of Sampling, Inspection and Tests

A. Sampling

A carefully secured representative sample of not less than one pint shall be provided for tests. When any considerable number of containers is being sampled equal portions shall be taken from not less than 5% of the containers, not less than 3 portions being so taken. Containers to be sampled shall be thoroughly agitated by stirring prior to withdrawal of the specimen.

B. Colour

Five cc. of the drier is mixed with 40 cc. of raw linseed oil and the colour of the mixture is determined in the Union Colorimeter in accordance with A.S.T.M. Procedure D155-34T.

C. Flash Point

The flash point shall be determined by means of a closed cup in accordance with A.S.T.M. Procedure D56-36.

D. Composition of Ash

About 10 cc. of the drier is placed in a porcelain dish and ignited. The residue is ashed at a low temperature (below dull red) in a muffle. A weighed portion of the ash (0.2 - 0.3 gm.) is dissolved in a slight excess of dilute nitric acid (1:3) to which a little hydrogen peroxide has been added. The solution is filtered and the residue is washed. The filtrate, including washings, is diluted to 150 cc., boiled for a few minutes, and then saturated with hydrogen

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sulphide. The black precipitate is filtered off, washed with water containing a little hydrogen sulphide and dissolved in hot nitric acid (1:3). Lead is determined as the sulphate (see A.S.T.M. Procedure D215-37) and reported as per cent Pb in the ash.

Lime shall be determined in the filtrate from the sulphide precipitation (see A.S.T.M. Procedure D215-37).

E. Action with Linseed Oil and Drying Properties

Five cc. of the drier is mixed with 95 cc. of raw linseed oil complying with Specification 1-GP-1, and allowed to stand for at least 12 hours. The mixture is then brushed out on a perfectly clean sheet of steel (automobile body steel) so as to form a dry film approximately 40 microns thick.

The sheet is then placed in a vertical position in air at $25 \pm 2^\circ\text{C}$. and at a relative humidity of $60 \pm 5\%$. After about two hours, the film is tested at intervals with the finger at points not less than 2.5 cm. from the edges. The film is considered dry when it no longer adheres to the finger and does not rub up appreciably when the finger is lightly rubbed across the surface.

The remainder of the mixture is allowed to stand for two hours. If a sediment or precipitate appears, the drier does not meet the specification.

Issued January 6, 1937.

CANADIAN GOVERNMENT PURCHASING STANDARDS COMMITTEE

Specification for
Liquid Paint Dryer, Types I and II

1. Definition:

The material required by this specification shall consist of a solution of organo-metallic salts in a suitable solvent and shall have the property of accelerating the drying of paint vehicles to which it is added.

2. General:

The dryer, as received, shall be a mobile liquid free from sediment and suspended matter and shall show no clotting or gelatinization. Type I shall be for use particularly with white or light shades of paint. Type II shall be for use with dark colours.

3. Colour:

Dryer of Type I shall be of such a colour that when mixed with raw linseed oil (Government Specification No. 1-GP-1) in the proportion of 1 volume of dryer to 8 volumes of oil, the resulting solution shall not be darker than No. 5 when determined by the Union Colorimeter. There shall be no minimum requirement as to colour of Type II.
(Appendix B)

4. Flash Point:

The flash point shall not be lower than 38°C.
(100°F.). (Appendix C)

5. Composition of Ash:

The dryer shall yield an ash which shall show, on analysis, not less than 20% of lead calculated as metallic lead, and not more than 35% of lime calculated as CaO.
(Appendix D)

6. Action with Linseed Oil:

The dryer shall mix with pure raw linseed oil (Government Specification No. 1-GP-1) in the proportion of 1 volume of dryer to 19 volumes of pure oil without curdling.
(Appendix E)

7. Drying Properties:

The mixture prepared as under Clause 6 (1:19) shall dry properly in not more than 8 nor less than 5 hours.
(Appendix E)

A P P E N D I XMethods of Sampling, Inspection and TestsA. Sampling:

A carefully secured representative sample of not less than one pint shall be provided for tests. When any considerable number of containers is being sampled equal portions shall be taken from not less than 5% of the containers, not less than 3 portions being so taken. Containers to be sampled shall be thoroughly agitated by stirring prior to withdrawal of the specimen.

B. Colour:

Five cc. of the dryer is mixed with 40 cc. of raw linseed oil and the colour of the mixture is determined in the Union Colorimeter in accordance with A.S.T.M. Procedure D155-34T.

C. Flash Point:

The flash point shall be determined by means of a closed cup in accordance with A.S.T.M. Procedure D56-36.

D. Composition of Ash:

About 10 cc. of the dryer is placed in a porcelain dish and ignited. The residue is ashed at a low temperature (below dull red) in a muffle. A weighed portion of the ash (0.2 - 0.3 gm.) is dissolved in a slight excess of dilute nitric acid (1:3) to which a little hydrogen peroxide has been added. The solution is filtered and the residue is washed. The filtrate, including washings is diluted to 150 cc., boiled for a few minutes, and then saturated with hydrogen

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sulphide. The black precipitate is filtered off, washed with water containing a little hydrogen sulphide and dissolved in hot nitric acid (1:3). Lead is determined as the sulphate (see A.S.T.M. Procedure D215-35) and reported as per cent Pb in the ash.

Lime shall be determined in the filtrate from the sulphide precipitation (see A.S.T.M. Procedure D215-35).

E. Action with Linseed Oil and Drying Properties:

Five cc. of the dryer is mixed with 95 cc. of raw linseed oil. A glass plate is thoroughly cleaned, washed with benzene and dried. A portion of the mixture is poured over this plate, and it is left in a vertical position to dry at a temperature of $30 \pm 2^{\circ}\text{C}$. and a relative humidity of $32 \pm 4\%$.

The film is examined at one-hour intervals by touching lightly with the finger at points not less than 2.5 cm. from the edges. If the finger can be drawn lightly across the film without the oil sticking to the finger or the surface being marred, the oil is considered dry. The time required for drying is noted.

The remainder of the mixture is allowed to stand for two hours. If a sediment or precipitate appears, the dryer does not meet the specification.

TENTATIVE

No. 1-GP-7.

Issued May 22, 1935.

CANADIAN GOVERNMENT PURCHASING STANDARDS COMMITTEE

Specification for
Liquid Paint Drier, Types I and II

1. Definition:

The material required by this specification shall consist of a solution of organo-metallic salts in a suitable solvent and shall have the property of accelerating the drying of paint vehicles to which it is added.

2. General:

The drier, as received, shall be a mobile liquid free from sediment and suspended matter and shall show no clotting or gelatinization. Type I shall be for use particularly with white or light shades of paint. Type II shall be for use with dark colours.

3. Colour:

Drier of Type I shall be of such a colour that when mixed with raw linseed oil (Government Specification No. 1-GP-1) in the proportion of 1 volume of drier to 8 volumes of oil, the resulting solution shall not be darker than No. 5 when determined by the Union Colorimeter. There shall be no minimum requirement as to colour of Type II.
(Appendix B).

4. Flash Point:

The flash point shall not be lower than 37°C.
(100°F.). (Appendix C).

5. Composition of Ash:

The drier shall yield an ash which shall show, on analysis, not less than 20% of lead calculated as metallic lead, and not more than 35% of lime calculated as CaO.
(Appendix D).

6. Action with Linseed Oil:

The drier shall mix with pure raw linseed oil (Government Specification No. 1-GP-1) in the proportion of 1 volume of drier to 19 volumes of pure oil without curdling. (Appendix E).

7. Drying Properties:

The mixture prepared as under Clause 6 (1:19) shall dry properly in not more than 8 nor less than 5 hours. (Appendix E).

A P P E N D I XMethods of Sampling, Inspection and TestsA. Sampling:

A carefully secured representative sample of not less than one pint shall be provided for tests. When any considerable number of containers is being sampled equal portions shall be taken from not less than 5% of the containers, not less than 3 portions being so taken. Containers to be sampled shall be thoroughly agitated by stirring prior to withdrawal of the specimen.

B. Colour:

Five cc. of the drier is mixed with 40 cc. of raw linseed oil and the colour of the mixture is determined in the Union Colorimeter in accordance with A.S.T.M. Procedure D155-34T.

C. Flash Point:

The flash point shall be determined by means of a closed cup in accordance with A.S.T.M. Procedure D56-27.

D. Composition of Ash:

About 10 cc. of the drier is placed in a porcelain dish and ignited. The residue is ashed at a low temperature (below dull red) in a muffle. A weighed portion of the ash (0.2 - 0.3 gm.) is dissolved in a slight excess of dilute nitric acid (1:3) to which a little hydrogen peroxide has been added. The solution is filtered and the residue is washed. The filtrate, including washings is diluted to 150 cc., boiled for a few minutes, and then saturated with hydrogen

35T

sulphide. The black precipitate is filtered off, washed with water containing a little hydrogen sulphide and dissolved in hot nitric acid (1:3). Lead is determined as the sulphate (see A.S.T.M. Procedure D215-29) and reported as per cent Pb in the ash.

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7. Lime shall be determined in the filtrate from the sulphide precipitation (see A.S.T.M. Procedure D215-29).

E. Action with Linseed Oil and Drying Properties:

Five cc. of the drier is mixed with 95 cc. of raw linseed oil. A glass plate is thoroughly cleaned, washed with benzene and dried. A portion of the mixture is poured over this plate, and it is left in a vertical position to dry at a temperature of $30 \pm 2^{\circ}\text{C}$. and a relative humidity of $32 \pm 4\%$.

The film is examined at one-hour intervals by touching lightly with the finger at points not less than 2.5 cm. from the edges. If the finger can be drawn lightly across the film without the oil sticking to the finger or the surface being marred, the oil is considered dry. The time required for drying is noted.

The remainder of the mixture is allowed to stand for two hours. If a sediment or precipitate appears, the drier does not meet the specification.