

**Thai Industrial Standard
for
Motorcycles: Safety Requirements;
Emission from Engine, Level 3**

1. Scope

- 1.1 This standard specifies requirements, marking and labelling, sampling and criteria for conformity and testing for motorcycles.
- 1.2 This standard covers only motorcycles with an unladen mass of less than 400 kg, a maximum designed speed exceeding 50 km per hour and cylinder capacity exceeding 50 cm³.
- 1.3 This standard covers only safety requirements related to limitation of emission of pollutants.

2. Definitions

- 2.1 For the purpose of this standard, the definitions given in TIS 1105 shall apply.

3. Requirements

Limitation for emission from motorcycles shall be as follows :

3.1 Type 1

- 3.1.1 After the test in accordance with clause 6.2, type approval test, Type 1, the average mass emission of carbonmonoxide and the average mass emission of hydrocarbons from 3 tests shall be less than the limits given in Table 1. Nevertheless, for each of the pollutants, one of the three results obtained may exceed by not more than 10% the limits prescribed in Table 1. In case where the prescribed limits are exceeded for more than one pollutants, it shall be immaterial whether this occurs in the same test or in different tests.

Table 1
Limits for emission of gaseous pollutants from motorcycles for type approval test, Type 1
(clause 3.1.1)

| g/km | |
|----------------|--------------|
| Carbonmonoxide | Hydrocarbons |
| 13.0 | 5.0 |

- 3.1.2 After the test in accordance with clause 6.2, conformity of production test, Type 1, the average mass emission of carbonmonoxide and the average mass emission of hydrocarbons from 3 tests shall be less than the limits given in Table 2.

Table 2
Limits for emission of gaseous pollutants from motorcycles for
conformity of production test, Type 1
(clause 3.1.2)

| g/km | |
|----------------|--------------|
| Carbonmonoxide | Hydrocarbons |
| 16.0 | 7.0 |

3.2 Type 2

After the test in accordance with clause 6.3, the concentration of carbonmonoxide at the completion of cycle 4 of Type 1 test of both the type approval test and conformity of production test shall not exceed 4.5% by volume.

3.3 Limits of hydrocarbons

Limits of hydrocarbons at idle speed shall comply with the latest issue of the Notification of Ministry of Science, Technology and Environment, "Standard for limitation of hydrocarbons from motorcycle exhaust pipe".

4. Marking and labelling

- 4.1 At least there shall be affixed, legibly clearly and permanently, to any part of the engine of every motorcycle, number, letter or mark representing the model of the engine corresponding to the motorcycle. In case foreign language is used, the meaning shall correspond to that in Thai specified above.
- 4.2 Any person who manufacturer products complying with this standard may use the Safety Mark in connection with his products only after having received a license from the Industrial Product Standards Council.

5. Sampling and criteria for conformity

5.1 Sampling and criteria for conformity on type approval test

5.1.1 Sampling

The manufacturer shall provide one motorcycle for the type approval test, including details as of clause 2.7, TIS 1105.

5.1.2 Criteria for conformity

Provided that the motorcycle prescribed in clause 5.1.1 complies with all requirements specified in clauses 3.1.1, 3.2 and 3.3, that type of motorcycles shall be deemed to comply with this standard.

5.2 Sampling and criteria for conformity of production test

5.2.1 Lot: Motorcycles of the same type as those previously deemed to comply with this standard which are manufactured or delivered or purchased at the same time, not to exceed 5 000 in number.

5.2.2 Sampling

One sample shall be drawn at random from the lot prescribed in clause 5.2.1.

5.2.3 Criteria for conformity

5.2.3.1 Provided that the sample prescribed in clause 5.2.2 complies with all requirements specified in clauses 3.1.2, 3.2 and 3.3, that lot of motorcycles shall be deemed to comply with this standard.

5.2.3.2 If the sample prescribed in clause 5.2.2 fails to comply with only the requirements of clause 3.1.2, additional samples as many as required by the manufacturer shall be subjected once again to the test in clause 6.6.2.2. The average mass emission of carbonmonoxide and the average mass emission of hydrocarbons calculated from test on all samples (one original sample plus additional samples, totalling n samples), and the standard deviation shall satisfy the requirement of clause 3.1.2 for the lot to be deemed in compliance with this standard.

6. Testing

6.1 General

The manufacturers shall identify the vehicle particulars used for type approval test in accordance with Annex A, TIS 1105.

6.2 Type 1 test procedure

The procedure shall comply with TIS 1105, Type 1 test, for both the type approval test and conformity of production test.

6.3 Type 2 test procedure

The procedure shall comply with TIS 1105, Type 2 test.

6.4 Report

The test results shall be reported to two decimal points.