Chemical Name;Methyl formate
Synonym ;Formic acid methyl ester

Molecular Weight ; 60.05
Melting Point ; - 100 ℃ [Aldrich]
～ - 100 ℃ [Merck]
Boiling Point ; 31.5 ℃ [CHCD,Merck]
34 ℃ [Aldrich]
Flashing Point ; < 19 ℃ [CHCD]
- 26 ℃ [Aldrich]
- 19 ℃(c.c.) [Merck]
Molecular Formula; $C_2H_4O_2$

**Chemical Structure**

$HCOOCH_3$

CAS No. ; 107-31-3
MITI No. ; (2)-677
ML No. ; —
Specified Chemical Substances; —

Source of Substance; Tokyo Kasei Kogyo Co.,Ltd.
Lot No. ; FGA01
Purity ; 95.0 %

Vehicle ; Filtrated Air
Exposure Condition; 37 ℃ , 24 Hr
Culture Condition ; 37 ℃ , 24 Hr

Mutagenicity in Bacterial Test ; **Negative**

IARC Evaluation ; not yet cited

| Conc. % | Number of Revertants/plate | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Base-substitution | | | | | | Frame-shift | | | |
| | TA100 | | TA1535 | | WP2*uvrA* | | TA98 | | TA1537 | |
| | S9－ | S9＋ | S9－ | S9＋ | S9－ | S9＋ | S9－ | S9＋ | S9－ | S9＋ |
| Air | (149) | (145) | ( 13) | ( 11) | ( 33) | ( 39) | ( 13) | ( 24) | ( 13) | ( 15) |
| | 145 | 151 | 10 | 10 | 49 | 39 | 18 | 37 | 20 | 21 |
| | 165 | 153 | 13 | 13 | 43 | 36 | 22 | 28 | 11 | 15 |
| 0.1 | (155) | (152) | ( 12) | ( 12) | ( 46) | ( 38) | ( 20) | ( 33) | ( 16) | ( 18) |
| | 171 | 185 | 10 | 17 | 28 | 53 | 11 | 18 | 5 | 17 |
| | 146 | 178 | 14 | 15 | 36 | 41 | 15 | 33 | 15 | 10 |
| 0.5 | (159) | (182) | ( 12) | ( 16) | ( 32) | ( 47) | ( 13) | ( 26) | ( 10) | ( 14) |
| | 148 | 192 | 16 | 15 | 34 | 44 | 11 | 24 | 15 | 18 |
| | 151 | 163 | 13 | 7 | 34 | 48 | 17 | 28 | 13 | 16 |
| 1 | (150) | (178) | ( 15) | ( 11) | ( 34) | ( 46) | ( 14) | ( 26) | ( 14) | ( 17) |
| | 33 | 38 | 0 | 5 | 26 | 29 | 6 | 1 | 8 | 7 |
| | 33 | 31 | 0 | 1 | 17 | 18 | 5 | 3 | 7 | 3 |
| 5 | ( 33) | ( 35) | ( 0) | ( 3) | ( 22) | ( 24) | ( 6) | ( 2) | ( 8) | ( 5) |
| | 1* | 0 | 0* | 0 | 1 | 0 | 1* | 0 | 1* | 0 |
| | 2* | 0 | 0* | 5 | 0 | 0 | 2* | 0 | 1* | 0 |
| 10 | ( 2*) | ( 0) | ( 0*) | ( 3) | ( 1) | ( 0) | ( 2*) | ( 0) | ( 1*) | ( 0) |
| | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| 50 | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) |
| **Judgement** | — | — | — | — | — | — | — | — | — | — |
| **Positive Minimum Concentration** | | | | | | | | | | |
| Positive Control | AF-2 (765) | 2-AA (1439) | $NaN_3$ (411) | 2-AA (408) | AF-2 (248) | 2-AA (1150) | AF-2 (498) | 2-AA (318) | 9-AA (1245) | 2-AA (341) |

| Conc. % | Number of Revertants/plate | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Base-substitution | | | | | | Frame-shift | | | |
| | TA100 | | TA1535 | | WP2*uvrA* | | TA98 | | TA1537 | |
| | S9− | S9＋ | S9− | S9＋ | S9− | S9＋ | S9− | S9＋ | S9− | S9＋ |
| Air | (111) | (111) | ( 17) | ( 13) | ( 26) | ( 31) | ( 19) | ( 26) | ( 13) | ( 13) |
| | 129 | 153 | 15 | 15 | 23 | 32 | 18 | 36 | 9 | 15 |
| | 135 | 97 | 15 | 13 | 24 | 29 | 15 | 26 | 9 | 20 |
| 0.05 | (132) | (125) | ( 15) | ( 14) | ( 24) | ( 31) | ( 17) | ( 31) | ( 9) | ( 18) |
| | 128 | 108 | 8 | 15 | 26 | 41 | 16 | 30 | 11 | 18 |
| | 112 | 122 | 15 | 13 | 23 | 38 | 22 | 28 | 14 | 16 |
| 0.1 | (120) | (115) | ( 12) | ( 14) | ( 25) | ( 40) | ( 19) | ( 29) | ( 13) | ( 17) |
| | 87 | 114 | 18 | 18 | 28 | 43 | 18 | 20 | 18 | 17 |
| | 108 | 112 | 13 | 18 | 16 | 49 | 15 | 18 | 9 | 18 |
| 0.5 | ( 98) | (113) | ( 16) | ( 18) | ( 22) | ( 46) | ( 17) | ( 19) | ( 14) | ( 18) |
| | 109 | 100 | 9 | 16 | 22 | 28 | 20 | 24 | 10 | 10 |
| | 116 | 121 | 14 | 18 | 22 | 32 | 20 | 23 | 9 | 11 |
| 1 | (113) | (111) | ( 12) | ( 17) | ( 22) | ( 30) | ( 20) | ( 24) | ( 10) | ( 11) |
| | 43 | 20 | 8 | 5 | 22 | 20 | 3 | 5 | 13 | 5 |
| | 34 | 25 | 10 | 3 | 14 | 14 | 6 | 2 | 15 | 5 |
| 5 | ( 39) | ( 23) | ( 9) | ( 4) | ( 18) | ( 17) | ( 5) | ( 4) | ( 14) | ( 5) |
| | 1* | 1 | 1* | 1 | 1 | 1 | 1* | 5 | 1* | 1 |
| | 1* | 1 | 1* | 1 | 3 | 2 | 1* | 2 | 1* | 2 |
| 10 | ( 1*) | ( 1) | ( 1*) | ( 1) | ( 2) | ( 2) | ( 1*) | ( 4) | ( 1*) | ( 2) |
| | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| 50 | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) | ( 0*) |
| **Judgement** | − | − | − | − | − | − | − | − | − | − |
| **Positive Minimum Concentration** | | | | | | | | | | |
| Positive Control | AF-2 (728) | 2-AA (1460) | $NaN_3$ (456) | 2-AA (361) | AF-2 (202) | 2-AA (1301) | AF-2 (526) | 2-AA (336) | 9-AA (2174) | 2-AA (300) |