

項目名	和訳結果	原文
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1. 一般情報

1.01 物質情報

CAS番号	74-83-9	74-83-9
物質名(日本語名)		
物質名(英名)	ブロモメタン	bromomethane
別名等		
国内適用法令の番号		
国内適用法令物質名		
OECD/HPV名称		
分子式	CH3Br	CH3Br
構造式		
備考		

1.02 安全性情報収集計画書／報告書作成者に関する情報

機関名	OECD HPV Chemicals Programme. SIAM 13で承認されたSIDS一式文書(2001年11月6-9日) http://www.oecd.org/dataoecd/2/38/35286067.pdf	OECD HPV Chemicals Programme. SIDS Dossier, approved at SIAM 13 (6-9 November 2001) http://www.oecd.org/dataoecd/2/38/35286067.pdf
代表者名		
所在地及び連絡先		
担当者氏名		
担当者連絡先(住所)		
担当者連絡先(電話番号)		
担当者連絡先(メールアドレス)		
報告書作成日		
備考		

1.03 カテゴリー評価

1.1 一般的な物質情報

物質のタイプ	有機化合物	有機化合物
物質の色・におい・形状等の情報		
物理的状態(20°C、1013hPa)	気体	気体
純度(重量／重量%)	> 99.5 - % w/w	> 99.5 - % w/w
出典		
備考		

1.2 不純物

CAS番号		
物質名称(IUPAC)	クロロメタン	chloromethane
国内適用法令の番号		
適用法令における名称		
含有率(%)	微量のクロロメタン	traces of chloromethane
出典		
備考		

1.3 添加物

CAS番号		
物質名称(IUPAC)	塩化ピクリン	Chloropicrin
国内適用法令の番号		
適用法令における名称		
含有率(%)	2 - % w/w	2 - % w/w
出典		
備考		

1.4 別名

物質名-1	モノブロモメタン	monobromomethane
物質名-2		
出典		
備考		

1.5 製造・輸入量

製造・輸入量	100000 - 500000	100000 - 500000
報告年		
出典	Chemical News, 1990 (20)	Chemical News, 1990 (20)
備考		

1.6 用途情報

主な用途情報	非拡散的用途	非拡散的用途
工業的用途	化学工業:合成 合成に使用	化学工業:合成 used in synthesis
用途分類		
出典		
備考		

主な用途情報	非拡散的用途	非拡散的用途
工業的用途	塗料・ラッカー・溶剤 低沸点溶剤	塗料・ラッカー・溶剤 Low-boiling solvent
用途分類		
出典		
備考		

主な用途情報	拡散の用途	拡散の用途
工業的用途	塗料・ラッカー・溶剤 低沸点溶剤	塗料・ラッカー・溶剤 Low-boiling solvent
用途分類		
出典		
備考	Presence in the Swedish Product Register (2001) Products/Consumer Products Main Use 2 Pesticide	Presence in the Swedish Product Register (2001) Products/Consumer Products Main Use 2 Pesticide

1.7 環境および人への暴露情報

暴露に関する情報	排出媒体: 工場からの排水	Media of release: Water from a production site
出典		
備考	工場排水 詳細英文参照	Media of release: Water from a production site The methyl bromide concentration in a sample of surface seawater has been given as 140 ng/liter. The average value of bromide ion concentrations in samples of coastal water near the North Sea was 18.4 mg/liter; the level of bromide ion in inland rivers was much lower except in regions where fumigation with methyl bromide was practiced, or, in areas of industrial pollution. There could be a risk of increased methyl bromide or bromide ion content in water in shallow wells near methyl bromide fumigation operations.

暴露に関する情報	工場からの大気排出	Media of release: Air from a production site
出典		
備考	英文参照	Methyl bromide concentrations, measured in the air in unpopulated areas, range from 40 to 100 ng/m ³ in the Northern hemisphere being higher than those in the Southern hemisphere. Seasonal differences have been found in some studies. In urban and industrial areas, the levels are much higher, with average values up to 800 ng/m ³ and with some readings as high as 4*mg methyl bromide/m ³ . In the proximity of fields and greenhouses, during fumigation and aeration, the concentrations of methyl bromide are considerably higher, values of 1-4 mg/m ³ being measured in one study at distances of up to 20 m from a greenhouse, a few hours after injection; a tenth of this value was found 4 days later.

暴露に関する情報	食物と作物	Foods and crops
出典		
備考	英文参照	Levels of methyl bromide or bromide may be elevated in foods that have either grown on soils previously treated with methyl bromide or have been fumigated post-harvest. On rare occasions, bromide levels in fresh vegetables, grown on previously fumigated with methyl bromide, have been observed to exceed the permitted residue level. Leafy vegetables can take up relatively large amounts of bromide ion without phytotoxic symptoms. Other crops, such as carnations, citrus seedlings, cotton, celery, peppers, and onions are sensitive to methyl bromide fumigation.

暴露に関する情報	自動車排ガス	Emission from motor car exhausts
出典	Baumann, H., Heumann K.G., 1987. Analysis of organobromine compounds and hydrogen bromide in motor car exhaust gases with a GC/microwave plasma system. Fresenius Z. Anal. Chem., 327: 186-192. Bell, C.H., 1988. Minimum concentration levels of methyl bromide required for full efficacy against seven species of stored-product beetle at two 温度. (9) (10)	Baumann, H., Heumann K.G., 1987. Analysis of organobromine compounds and hydrogen bromide in motor car exhaust gases with a GC/microwave plasma system. Fresenius Z. Anal. Chem., 327: 186-192. Bell, C.H., 1988. Minimum concentration levels of methyl bromide required for full efficacy against seven species of stored-product beetle at two temperatures. (9) (10)
備考	Engines operating on "leaded" petrol, containing ethylene dibromide as an additive contribute a much larger amount of methyl bromide to urban atmospheres than engines with catalytic converters burning "unleaded" fuel. About 45 tonnes of methyl bromide is produced from car exhaust in the United Kingdom annually. Methyl bromide concentrations in the range of 90-190 *g/m ³ have been measured in the exhaust emissions of motor vehicles using leaded petrol with EDB. Between 7000 and 18,000 tonnes of methyl bromide may be emitted annually from car exhaust.	Engines operating on "leaded" petrol, containing ethylene dibromide as an additive contribute a much larger amount of methyl bromide to urban atmospheres than engines with catalytic converters burning "unleaded" fuel. About 45 tonnes of methyl bromide is produced from car exhaust in the United Kingdom annually. Methyl bromide concentrations in the range of 90-190 *g/m ³ have been measured in the exhaust emissions of motor vehicles using leaded petrol with EDB. Between 7000 and 18,000 tonnes of methyl bromide may be emitted annually from car exhaust.

暴露に関する情報	海洋からの排出	Emission from the ocean
出典	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan. (55)	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan. (55)
備考	おそらくブロモメタンの最大の排出源は、海洋からの自然由来のものである。	Perhaps the greatest source of methyl bromide is that naturally emitted from the oceans

1.8 追加情報

既存分類		
職業暴露限界		
廃棄方法	廃棄のオプション	Option for disposal
文献調査の範囲と日付		

出典	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH). (56)	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH). (56)
備考	燃焼による処分 詳細英文参照	Methyl bromide may be disposed by controlled incineration with scrubbing and ash disposal facilities. Rotary kiln incinerators operating at a temperature of 820 to 1600°C and residence times of seconds or more for liquids and gases are sufficient to dispose of methyl bromide. Fluidized bed incinerators operating at temperatures of 450 to 980°C with residence times of seconds or longer also may be used to dispose of methyl bromide

既存分類		
職業暴露限界		
廃棄方法		
文献調査の範囲と日付		
出典	Sweden Product Register (2001) (124)	Sweden Product Register (2001) (124)
備考	英文参照	In Sweden the Product Register (2001) indicated two (2) consumer products in which the main use was in Pesticide. No other specific information was given as to the % of methyl bromide in the product.

2. 物理化学的性状

2.1 融点

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP		
試験を行った年		
試験条件		
結果		
融点: °C	-93.7°C	-93.7°C
分解: °C	不明	不明
昇華: °C	不明	不明
結論		
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Merck Index (12th Edition), 1996. Merck & Co., Budavari et al., editors, Whitehouse Station, New Jersey.	Merck Index (12th Edition), 1996. Merck & Co., Budavari et al., editors, Whitehouse Station, New Jersey.
引用文献	(82)	(82)
備考		

2.2 沸点

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果		
沸点: °C	3.6°C	3.6°C
圧力	1013 hPa	1013 hPa
分解: °C	不明	不明
結論		
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Matheson gas data book, 1980. The Matheson gas data book. East Rutherford, New Jersey, Matheson Gas products (A Division of Will Ross), vol 6, pp 361-363. Windholtz, M., 1983. The Merck index, 10th ed. Rahway, New Jersey, Merck & Co., Inc., p. 865.	Matheson gas data book, 1980. The Matheson gas data book. East Rutherford, New Jersey, Matheson Gas products (A Division of Will Ross), vol 6, pp 361-363. Windholtz, M., 1983. The Merck index, 10th ed. Rahway, New Jersey, Merck & Co., Inc., p. 865.
引用文献	(77) (142)	(77) (142)
備考		

2.3 密度(比重)

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果	3.974 kg/m ³	3.974 kg/m ³
タイプ	比重	比重
温度(°C)	20°C	20°C

注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Windholtz, M., 1983. The Merck index, 10th ed. Rahway, New Jersey, Merck & Co., Inc., p. 865.	Windholtz, M., 1983. The Merck index, 10th ed. Rahway, New Jersey, Merck & Co., Inc., p. 865.
引用文献	(142)	(142)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果	1730 kg/m3	1730 kg/m3
タイプ	比重	比重
温度(°C)	0°C	0°C
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Hommel, G., 1984. [Handbook of dangerous goods (Explanatory leaflet 127).] Berlin, Heidelberg, New York, Springer-Verlag (in German). Matheson gas data book, 1980. The Matheson gas data book. East Rutherford, New Jersey, Matheson Gas products (A Division of Will Ross), vol 6, pp 361-363. Windholtz, M., 1983. The Merck index, 10th ed. Rahway, New Jersey, Merck & Co., Inc., p. 865.	Hommel, G., 1984. [Handbook of dangerous goods (Explanatory leaflet 127).] Berlin, Heidelberg, New York, Springer-Verlag (in German). Matheson gas data book, 1980. The Matheson gas data book. East Rutherford, New Jersey, Matheson Gas products (A Division of Will Ross), vol 6, pp 361-363. Windholtz, M., 1983. The Merck index, 10th ed. Rahway, New Jersey, Merck & Co., Inc., p. 865.
引用文献	(48) (77) (142)	(48) (77) (142)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果	3.27	3.27
タイプ	その他:下欄のセルに記載	その他:下欄のセルに記載
	蒸気密度	vapor density
温度(°C)	20°C	20°C
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Matheson gas data book, 1980. The Matheson gas data book. East Rutherford, New Jersey, Matheson Gas products (A Division of Will Ross), vol 6, pp 361-363.	Matheson gas data book, 1980. The Matheson gas data book. East Rutherford, New Jersey, Matheson Gas products (A Division of Will Ross), vol 6, pp 361-363.
引用文献	(48)	(48)
備考	大気= 1 タイプ: 蒸気密度	rel.; air = 1 Type: Vapor Density

2.4 蒸気圧

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果		
蒸気圧	18930 hPa	18930 hPa
温度: °C	20°C	20°C
分解: °C	不明	不明
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Stenger, V.A., 1978. Bromine compounds. In: Kirk-Othmer encyclopedia of chemical technology, 3rd ed. New York, Chichester, Brisbane, Toronto, John Wiley and Son, vol 4, pp 243-263. Windholtz, M., 1983. The Merck index, 10th ed. Rahway, New Jersey, Merck & Co., Inc., p. 865.	Stenger, V.A., 1978. Bromine compounds. In: Kirk-Othmer encyclopedia of chemical technology, 3rd ed. New York, Chichester, Brisbane, Toronto, John Wiley and Son, vol 4, pp 243-263. Windholtz, M., 1983. The Merck index, 10th ed. Rahway, New Jersey, Merck & Co., Inc., p. 865.
引用文献	(122) (142)	(122) (142)
備考	=1420 mmHg	=1420 mmHg

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		

注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果		
蒸気圧	16661 hPa	16661 hPa
温度: °C	20°C	20°C
分解: °C	不明	不明
結論		
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Hawley's Condensed Chemical Dictionary, 11th Ed., 1987. N.I. Sax and R.J. Lewis, eds., Van Nostrand Reinhold Co., New York.	Hawley's Condensed Chemical Dictionary, 11th Ed., 1987. N.I. Sax and R.J. Lewis, eds., Van Nostrand Reinhold Co., New York.
引用文献	(44)	(44)
備考	=1250 mmHg	=1250 mmHg

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果		
蒸気圧	18927 hPa	18927 hPa
温度: °C	20°C	20°C
分解: °C	不明	不明
結論		
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Merck Index (12th Edition), 1996. Merck & Co., Budavari et al., editors, Whitehouse Station, New Jersey.	Merck Index (12th Edition), 1996. Merck & Co., Budavari et al., editors, Whitehouse Station, New Jersey.
引用文献	(82)	(82)
備考	=1420 mmHg	=1420 mmHg

2.5 分配係数(log Kow)

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等	純度: 100% 供給時の物質状態: シリンダーに入った液化ガス (加圧)と推定 供給者: Trical Inc. Lotナンバー: なし	Purity: 100% pure Supplied as: Presumed as liquefied gas (under pressure) in cylinders. Supplier: Trical Inc., No Lot number provided.
注釈		
方法	その他 (測定): 40 CFR, 796.1550, 及び California Notice 87-6	other (measured): 40 CFR, 796.1550 and California Notice 87-6
GLP	いいえ	いいえ
試験を行った年	1990	1990
試験条件	(英文参照)	Methyl bromide gas was bubbled through chilled, water-saturated octanol for an unspecified period of time to obtain a stock solution. The concentration was not determined. Two sequential 10-fold dilutions of this solution were made and known volumes of these solutions were mixed with known volumes of octanol-saturated water in sealed vials. This step was conducted in triplicate. The vials were agitated at 25°C for 1 hour to achieve equilibrium. Both phases were then subjected to GC analysis (each vial in triplicate), using a gas chromatograph equipped with a mass-selective detector (selective ion monitoring mode). The log of the ratio in the octanol phase divided by that in the aqueous phase was determined to be the log octanol water partition coefficient.
結果		
Log Kow	log Pow = 1.94	log Pow = 1.94
温度: °C	25°C	25°C
結論	ブロモメタンの log Kow は 1.94 ± 0.31.	The log Kow for methyl bromide was determined to be 1.94 ± 0.31. The log Kow of the three vial replicates ranged from 1.61 to 2.20.
注釈	英文参照	Although determination of the log Kow for a gas is somewhat problematic, this study was able to establish a reproducible value within an adequate variability range. Methyl bromide does not have a high Kow and consequently would not tend to bioaccumulate.
信頼性スコア	2 制限付きで信頼性あり (非GLP等)	2 制限付きで信頼性あり (非GLP等)
信頼性の判断根拠	選択してください	選択してください
信頼性の判断根拠	本試験のデータの質は容認可能であり、報告書には手法と結果の十分な記載がある。本調査は Klimisch level 2 である。	The data quality from this study is considered acceptable. The report included adequate documentation for method and results. This study reaches Klimisch level 2.
出典	Secara, S.R., 1990. Methyl Bromide - Octanol/Water Partition Coefficient. Unpublished report from Bolsa Research Associates, Inc. BR 172:90. US EPA MRID# 42541301.	Secara, S.R., 1990. Methyl Bromide - Octanol/Water Partition Coefficient. Unpublished report from Bolsa Research Associates, Inc. BR 172:90. US EPA MRID# 42541301.
引用文献	(112) (132)	(112) (132)
備考		

2.6.1 水溶解性(解離定数を含む)

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等	純度: 99.9% 供給時の物質状態: 非特定:シリンダーに入った液化ガス(加圧)と推定	Purity: 99.9% Supplied as: Not specified; presumed as liquefied gas (under pressure) in cylinders.
注釈 方法	(英文参照)	No specific protocol guideline number was included with the report although methodology is described. In addition, reference is made to "Chemical Fate Testing Guidelines: Water Solubility, CG-1500" (no specific reference included).
GLP	不明	不明
試験を行った年	1992	1992
試験条件	(英文参照)	Known quantities (0.15, 1.0, 1.5, and 1.8 grams) of liquid methyl bromide were introduced into air-tight vials containing 100 ml water and allowed to come to equilibrium at 25oC for 24 hours. After equilibrium was reached, the amount of methyl bromide in water was measured by gas chromatography.
結果		
水溶解度	16.1 g/l	16.1 g/l
温度: °C	25°C	25°C
pH		
pH測定時の物質濃度		
結論	臭化メチルは、試験条件下では、水にわずかに溶解した。	Methyl bromide is slightly soluble in water under experimental conditions.
注釈		
信頼性スコア	2 制限付きで信頼性あり(非GLP等)	2 制限付きで信頼性あり(非GLP等)
信頼性の判断根拠	選択してください この試験のデータの質は、不十分であると考えられる。手法と結果に関する十分な文書が報告書に記載されている。Klimisch level 2.	選択してください The data quality from this study is considered marginal. The report included adequate documentation for method and results. This study reaches Klimisch level 2.
出典	MRID# 42537801. Determination of Water Solubility of Methyl Bromide. Literature Search Submission containing 3 studies. October 30, 1992.	MRID# 42537801. Determination of Water Solubility of Methyl Bromide. Literature Search Submission containing 3 studies. October 30, 1992.
引用文献	(90)	(90)
備考		
解離定数		
試験物質		
同一性		
方法		
温度: °C		
GLP	選択してください	選択してください
試験条件		
試験を行った年		
結果		
結論		
注釈		
信頼性スコア		
信頼性の判断根拠	選択してください	選択してください
出典		
引用文献		
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈 方法	その他: 報告書に方法の記載はあるが、明確なガイドライン番号は記載されていない。	other: No specific protocol guideline number was included with the report although methodology is described.
GLP	不明	不明
試験を行った年	1972	1972
試験条件	(英文参照)	Methyl bromide gas was bubbled through water for 45 minutes at 20°C to achieve saturation. The concentration of methyl bromide in saturated water was measured immediately by gas chromatography (Varian 1400 with flame detector).
結果		
水溶解度	12 g/l	12 g/l
温度: °C	20°C	20°C
pH		
pH測定時の物質濃度		
結論	試験条件下、臭化メチルはわずかに水に溶ける。	Methyl bromide is slightly soluble in water under experimental conditions.
注釈	見かけの溶解度は1.2g臭化メチル/100ml水、又は12 g/L であった(20°C)。 pH と pKaは報告されなかった。おそらく臭化メチルにより試験で使った蒸留水のpHは変化しないだろう。	The apparent solubility was 1.2 grams of methyl bromide per 100 milliliters of water or 12 g/L at 20oC. The pH and the pKa were not reported. Methyl bromide would probably not change the pH of the distilled deionized water used in the study.
信頼性スコア	2 制限付きで信頼性あり(非GLP等)	2 制限付きで信頼性あり(非GLP等)
信頼性の判断根拠	選択してください この試験のデータの質は許容限界周辺にあると考えられる。手法と結果に関する十分な文書が報告書に記載されている。Klimisch level 2.	選択してください The data quality from this study is considered marginal. The report included adequate documentation for method and results. This study reaches Klimisch level 2.

出典	Mapes, D.A., 1972. Solubility of Methyl Bromide in Water at 20° C. Unpublished report from Dow Analytical Laboratories. Report 40-844. US EPA MRID# 42537801. Determination of Water Solubility of Methyl Bromide. Literature Search Submission containing 3 studies. October 30, 1992.	Mapes, D.A., 1972. Solubility of Methyl Bromide in Water at 20° C. Unpublished report from Dow Analytical Laboratories. Report 40-844. US EPA MRID# 42537801. Determination of Water Solubility of Methyl Bromide. Literature Search Submission containing 3 studies. October 30, 1992.
引用文献	(76) (131)	(76) (131)
備考		
解離定数		
試験物質		
同一性		
方法		
温度: °C		
GLP	選択してください	選択してください
試験条件		
試験を行った年		
結果		
結論		
注釈		
信頼性スコア		
信頼性の判断根拠	選択してください	選択してください
出典		
引用文献		
備考		

2.6.2 表面張力

2.7 引火点(液体)

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果		
引火点: °C	194°C	194°C
試験のタイプ	不明	不明
結論		
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Hommel, G., 1984. [Handbook of dangerous goods (Explanatory leaflet 127).] Berlin, Heidelberg, New York, Springer-Verlag (in German).	Hommel, G., 1984. [Handbook of dangerous goods (Explanatory leaflet 127).] Berlin, Heidelberg, New York, Springer-Verlag (in German).
引用文献	(48)	(48)
備考	難燃性	Burns with difficulty

2.8 自己燃焼性 (固体/気体)

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果		
自動発火点: °C	537°C	537°C
圧力		
結論		
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Elf Atochem, Material Safety Data Sheet, 1993	Elf Atochem, Material Safety Data Sheet, 1993
引用文献	(30)	(30)
備考		

2.9 引火性

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果		
固体の場合		
引火性が高い	選択してください	選択してください
気体の場合		
水との接触	不明	不明
結論	非引火性	non flammable
注釈	13.5 - 14.5 % Vol.	13.5 - 14.5 % by volume

信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Matheson gas data book, 1980. The Matheson gas data book. East Rutherford, New Jersey, Matheson Gas products (A Division of Will Ross), vol 6, pp 361-363.	Matheson gas data book, 1980. The Matheson gas data book. East Rutherford, New Jersey, Matheson Gas products (A Division of Will Ross), vol 6, pp 361-363.
引用文献	(77)	(77)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果		
固体の場合		
引火性が高い	選択してください	選択してください
気体の場合		
水との接触	不明	不明
結論	非引火性	non flammable
注釈	酸素中では燃焼 10-16 % vol..	10-16 % by volume. It burns in oxygen.
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	NFPA, 1984. Fire protection guide on hazardous materials, 9th ed. Quincy, Maryland, National Fire Protection Agency, 5 pp. (NFPA No. SPP-1E) Windholtz, M., 1983. The Merck index, 10th ed. Rahway, New Jersey, Merck & Co., Inc., p. 865.	NFPA, 1984. Fire protection guide on hazardous materials, 9th ed. Quincy, Maryland, National Fire Protection Agency, 5 pp. (NFPA No. SPP-1E) Windholtz, M., 1983. The Merck index, 10th ed. Rahway, New Jersey, Merck & Co., Inc., p. 865.
引用文献	(95) (142)	(95) (142)
備考		

2.10 爆発性

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果		
火により爆発	不明	不明
m-ジニトロベンゼンより摩擦に敏感	不明	不明
m-ジニトロベンゼンより衝撃に敏感	不明	不明
爆発性ない	その他: 下欄のセルに記載	その他: 下欄のセルに記載
その他	アルミとジメチルスルホキサイドに接触すると爆発する	Explosions upon contact with aluminum and dimethyl sulfoxide
結論	アルミとジメチルスルホキサイドに接触すると爆発する	Explosions upon contact with aluminum and dimethyl sulfoxide
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	NFPA, 1984. Fire protection guide on hazardous materials, 9th ed. Quincy, Maryland, National Fire Protection Agency, 5 pp. (NFPA No. SPP-1E)	NFPA, 1984. Fire protection guide on hazardous materials, 9th ed. Quincy, Maryland, National Fire Protection Agency, 5 pp. (NFPA No. SPP-1E)
引用文献	(95)	(95)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
結果		
火により爆発	不明	不明
m-ジニトロベンゼンより摩擦に敏感	不明	不明
m-ジニトロベンゼンより衝撃に敏感	不明	不明
爆発性ない	いいえ	いいえ
その他		
結論	濃度10.1～15.4 % v/vでは、空気により爆発的混合物を形成するおそれがある。	May form explosive mixture with air at concentrations of 10.1 to 15.4 % v/v
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Elf Atochem, Material Safety Data Sheet, 1993	Elf Atochem, Material Safety Data Sheet, 1993

引用文献	(30)	(30)
備考		

2.11 酸化性

2.12 酸化還元ポテンシャル

2.13 その他の物理化学的性状に関する情報

3. 環境運命と経路

3.1 安定性

3.1.1. 光分解

試験物質名	ブロモメタン	bromomethane
CAS番号	4-83-9	4-83-9
純度等		
注釈		
方法	その他(測定)	other (measured)
タイプ	間接光分解	間接光分解
GLP	不明	不明
試験を行った年		
光源と波長(nm)		
太陽光強度に基づいた相対強度		
物質のスペクトル		
試験条件	温度: -8°Cおよび 25°C 増感剤タイプ: 水酸基 増感剤濃度: 未報告 分子/cm3 速度定数(ラジカル): 未報告 (cm3/分子*秒)	Temperature: -8 & 25 degree C Type of sensitizer: Hydroxy radicals Concentration of sensitizer: molecules/cm3 Rate constant (radical): not reported (cm3/molecule*sec)
結果		
物質濃度		
温度(°C)		
直接光分解		
半減期t1/2		
分解度(%)と時間		
量子収率 (%)		
間接光分解		
増感剤(タイプ)	OH	OH
増感剤濃度		
速度定数		
半減期t1/2	OH濃度 5 x 105 molecules/cm3における半減期: 1.6年 (-8°C) 1.1年 (25°C) OH濃度 1 x 106 molecules/cm3における半減期: 0.79年 (-8°C) 0.57年 (25°C) OH濃度 2 x 106 molecules/cm3における半減期: 0.40年 (-8°C) 0.29年 (25°C)	Half life: at OH concentrations of 5 x 105 molecules/cm3 1.6 years at -8 degree C 1.1 years at 25 degree C at OH concentrations of 1 x 106 molecules/cm3 0.79 years at -8 degree C 0.57 years at 25 degree C at OH concentrations of 2 x 106 molecules/cm3 0.40 years at -8 degree C 0.29 years at 25 degree C
分解生成物	不明	不明
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.
引用文献	(55)	(55)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	4-83-9	4-83-9
純度等		
注釈		
方法	土壌における直接光分解を評価	This study evaluated direct photolysis on soil
タイプ	直接光分解	直接光分解
GLP	不明	不明
試験を行った年		
光源と波長(nm)		
太陽光強度に基づいた相対強度		
物質のスペクトル		
試験条件		
結果		
物質濃度		
温度(°C)		
直接光分解		
半減期t1/2		
分解度(%)と時間		
量子収率 (%)		
間接光分解		
増感剤(タイプ)		
増感剤濃度		
速度定数		
半減期t1/2	10日 分解: 6 - 14 % (1日後)	Half-life t1/2: 10 day(s) Degradation: 6 - 14 % after 1 day(s)

分解生成物	不明	不明
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Daelemans, A. 1978. Uptake of methyl bromide by plants and uptake of bromide from decontaminated soils. Leuven, Belgium, Catholic University (Dissertation) (in Flemish). Hertzel & Schmidt, 1984	Daelemans, A. 1978. Uptake of methyl bromide by plants and uptake of bromide from decontaminated soils. Leuven, Belgium, Catholic University (Dissertation) (in Flemish). Hertzel & Schmidt, 1984
引用文献	(22) (45)	(22) (45)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	4-83-9	4-83-9
純度等		
注釈		
方法	土壌における直接光分解を評価	This study evaluated direct photolysis on soil
タイプ	直接光分解	直接光分解
GLP	はい	はい
試験を行った年		
光源と波長(nm)		
太陽光強度に基づいた相対強度		
物質のスペクトル		
試験条件		
結果		
物質濃度	0.001 mol/l	0.001 mol/l
温度(°C)	25°C	25°C
直接光分解		
半減期t1/2		
分解度(%)と時間		
量子収率 (%)		
間接光分解		
増感剤(タイプ)		
増感剤濃度		
速度定数		
半減期t1/2	258.6時間 (pH 5.0), 255.8 時間 (pH 7.0), 361.0 時間 (pH 9.0)	258.6 hours (pH 5.0), 255.8 hours (pH 7.0), 361.0 hours (pH 9.0)
分解生成物	不明	不明
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Bolsa Research, 1993. Photohydrolysis of methyl bromide. Report No. BR 289.1:93. Sponsor: CMA Methyl Bromide Industry Panel.	Bolsa Research, 1993. Photohydrolysis of methyl bromide. Report No. BR 289.1:93. Sponsor: CMA Methyl Bromide Industry Panel.
引用文献	(12)	(12)
備考		

3.1.2. 水中安定性(加水分解性)

試験物質名	ブロモメタン	bromomethane
CAS番号	4-83-9	4-83-9
純度等		
注釈		
方法	半減期: 20日	Half life: 20 days
GLP	不明	不明
試験を行った年		
試験条件		
結果		
設定濃度		
実測濃度		
所定時間後の分解度(%), pH, 温度	加水分解速度定数 = 4.09×10^{-7} (pH 7、25 °C)	Hydrolysis rate constant = 4.09×10^{-7} at pH 7 at 25 degree C after an unreported exposure time
半減期	20日	20 days
分解生成物	不明	不明
結論	加水分解速度定数 = 4.09×10^{-7} (pH 7、25 °C)	Hydrolysis rate constant = 4.09×10^{-7} at pH 7 at 25 degree C after an unreported exposure time
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.
引用文献	(55)	(55)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	4-83-9	4-83-9
純度等		
注釈		
方法	半減期: 26.7日	Half life: 26.7 days
GLP	不明	不明
試験を行った年		
試験条件		

結果		
設定濃度		
実測濃度		
所定時間後の分解度(%), pH、温度	加水分解速度定数 = 3.09×10^{-7} pH: 未報告 (25°C) ばく露時間: 未報告	Hydrolysis rate constant = 3.09×10^{-7} at an unreported pH at 25 degree C after an unreported exposure time
半減期	26.7日	26.7 days
分解生成物	不明	不明
結論	加水分解速度定数 = 3.09×10^{-7} pH: 未報告 (25°C) ばく露時間: 未報告	Hydrolysis rate constant = 3.09×10^{-7} at an unreported pH at 25 degree C after an unreported exposure time
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.
引用文献	(55)	(55)
備考		

3.1.3. 土壌中安定性

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
試験期間		
結果		
試験のタイプ	不明	不明
放射性ラベル	不明	不明
濃度		
土壌温度 °C		
土壌中pH		
土壌中湿度 (%)		
土壌のクラス		
粘土含量 (%)		
有機炭素 (%)		
陽イオン交換能		
微生物バイオマス濃度		
消失時間 (DT50、DT90)	不明	不明
分解生成物	不明	不明
時間ごとの消失率		
結論	さまざまな土壌のKoc 値からブロモメタンは、土壌と強く結合しないと考えられる。 (詳細英文参照)	Koc values for various soil types indicate that methyl bromide will not bind strongly to soil, although dry soils absorb more strongly relative to moist soils. Thus, methyl bromide may readily evaporate into the air or leach into ground water.
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.
引用文献	(55)	(55)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
GLP	不明	不明
試験を行った年		
試験条件		
試験期間		
結果		
試験のタイプ	不明	不明
放射性ラベル	不明	不明
濃度		
土壌温度 °C		
土壌中pH		
土壌中湿度 (%)		
土壌のクラス		
粘土含量 (%)		
有機炭素 (%)		
陽イオン交換能		
微生物バイオマス濃度		
消失時間 (DT50、DT90)	不明	不明

分解生成物	いいえ	いいえ
時間ごとの消失率		
結論	Great Lakes Corporationが運営するCMA Methyl Bromide Industry Panel からEPAへデータ提供があった。データによれば、臭化メチルは、土壤中で感知可能レベルの好気性または嫌気性分解を生じない。物質の損失は大気への蒸発によるものである。 (詳細は英文参照)	Data submission from CMA Methyl Bromide Industry Panel (conducted by Great Lakes Corporation) to EPA. Data indicate that methyl bromide is not appreciably aerobically or anaerobically degraded in soil, but that loss is due to evaporation into the tmosphere. This study was submitted to US EPA to support FIFRA DCI. It is a collection of field dissipation data and secondary references.
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Great Lakes Corporation, 1986. Data submission from Chemical Manufacturers Association to EPA for methyl bromide. Methyl bromide Field Dissipation Study conducted by Great Lakes Corporation according to EPA-negotiated protocol.	Great Lakes Corporation, 1986. Data submission from Chemical Manufacturers Association to EPA for methyl bromide. Methyl bromide Field Dissipation Study conducted by Great Lakes Corporation according to EPA-negotiated protocol.
引用文献	(38)	(38)
備考		

3.2. モニタリングデータ(環境)

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
測定タイプ(地点)	バックグラウンド	バックグラウンド
媒体	大気	大気
結果	1975～1980年、米国の都市部におけるサイト10件: 41～256 ppt (159～1005 ng/m3)	41 to 256 ppt (159 to 1005 ng/m3) at 10 urban sites in the U.S. circa 1975-1980
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).
引用文献	(56)	(56)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
測定タイプ(地点)	バックグラウンド	バックグラウンド
媒体	水	水
	海水	sea water
結果	濃度: 1.5 - 3.9 $\mu\text{g/l}$	Concentration: 1.5 - 3.9 $\mu\text{g/l}$
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).
引用文献	(56)	(56)
備考	Atlantic Ocean water off Dorchester, England 1975	Atlantic Ocean water off Dorchester, England 1975

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
測定タイプ(地点)	バックグラウンド	バックグラウンド
媒体	水	水
	海水	sea water
結果	平均: 1.2 ng/liter (ug/liter?)	Mean of 1.2 ng/liter (ug/liter?)
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).
引用文献	(56)	(56)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		

注釈		
方法		
測定タイプ(地点)	バックグラウンド	バックグラウンド
媒体	水	水
	沿岸水	shore water
結果	平均値 0.14 ug/liter	Mean of 0.14 ug/liter
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).
引用文献	(56)	(56)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
測定タイプ(地点)	バックグラウンド	バックグラウンド
媒体	水	水
	排水	effluent water
結果	濃度 < 10 - μ g/l	Concentration < 10 - μ g/l
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.
引用文献	(55)	(55)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
測定タイプ(地点)	バックグラウンド	バックグラウンド
媒体	大気	大気
結果	159 - 1005 ng/m ³ (41 - 259 ppt)	159 - 1005 ng/m ³ (41 - 259 ppt)
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).	HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).
引用文献	(56)	(56)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
測定タイプ(地点)	バックグラウンド	バックグラウンド
媒体	大気	大気
結果	19 ng/m ³ - 北西農村部 1.9 - 3.5 ng/m ³ - ワシントン州の農村部 35 - 57 ng/m ³ 月平均範囲 - アラスカ州バロー	19 ng/m ³ - rural Northwest 1.9 - 3.5 ng/m ³ - rural Washington State 35 - 57 ng/m ³ monthly average range - Barrows, Alaska
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan.
引用文献	(55)	(55)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		

測定タイプ(地点)	その他:下欄のセルに記載	その他:下欄のセルに記載
媒体	穀物や野菜	grains, vegetables, and fruits
結果	その他:下欄のセルに記載	その他:下欄のセルに記載
結論	食物	food
注釈	ブロモメタンを用いた燻蒸消毒の残渣が、さまざまな穀物や野菜などから検出される。(詳細は英文参照)	Residues were found in a variety of grains, vegetables, and fruits fumigated with methyl bromide, including: wheat, rice, flour, corn, raisins, sorghum, cottonseed meal, and peanut meal. Methyl bromide concentrations were < 1 mg/kg within a few days. No residues were found after fumigation in asparagus, avocados, peppers, or tomatoes. Traces of methyl bromide were found in wheat, flour and other products fumigated with 370 mg/m3 after 9 days aeration.
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan. HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH). IARC (International Agency for Research on Cancer). 1986. Monographs on the evaluation of the carcinogenic risk of chemical to man. Geneva: World Health Organization, Methyl Bromide. p. 187- 212, Lyon, France.	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan. HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH). IARC (International Agency for Research on Cancer). 1986. Monographs on the evaluation of the carcinogenic risk of chemical to man. Geneva: World Health Organization, Methyl Bromide. p. 187- 212, Lyon, France.
引用文献	(55) (56) (59)	(55) (56) (59)
備考		

3.3. 移動と分配

3.3.1 環境区分間の移動

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法	その他:下欄のセルに記載	その他:下欄のセルに記載
結果	蒸発	evaporation
媒体	大気-水	大気-水
環境分布予測と媒体中濃度 (levelIII/III)	表層水中のブロモメタンの半減期は、11℃の水温で6.6時間	The average half-life for methyl bromide in surface water, under field conditions, was calculated to be 6.6 h at a water temperature of about 11 degree C, the decline being attributed to degradation and volatilization processes.
結論	水から大気へ急速に移動	Rapid transfer from water to air
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Wegman, R.C.C., Greve, P.A., De Heer, H., Hamaker, P.H., 1981. Methyl bromide and bromide-ion in drainage water after leaching of glasshouse soils. Water Air Soil Pollut., 16:3-11.	Wegman, R.C.C., Greve, P.A., De Heer, H., Hamaker, P.H., 1981. Methyl bromide and bromide-ion in drainage water after leaching of glasshouse soils. Water Air Soil Pollut., 16:3-11.
引用文献	(136)	(136)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法	不明	不明
結果	揮発性	volatility
媒体	その他:下欄のセルに記載	その他:下欄のセルに記載
環境分布予測と媒体中濃度 (levelIII/III)	水 - 土壌 - 大気 英文参照	water - soil - air Methyl bromide is nearly four times heavier than air, and much of that used as a soil fumigant diffuses throughout the surface to depths of 60-20 cm, some of it being hydrolyzed to bromide ion or decomposed by microorganisms, the remainder (45-90%) eventually being dissipated into the atmosphere. The rate of degradation of methyl bromide in soil was about 6-14-% per day at 20 *C. A review of the mechanisms of breakdown of methyl bromide indicated the unimolecular nucleophilic substitution should be the major mechanism for the hydrolysis of methyl bromide in water. The reaction of dissolved methyl bromide with the soil organic matter involved the transference of the methyl group to carboxy groups and N- and S-containing groups of amino acids and proteins of soil organic matter. The fumigant is degraded in shallow topsoils, although the fumigant is relatively persistent in the underlying strata, where its diffusion into the atmosphere is no longer possible.
結論	土壌中で臭化物イオンへ分解: 大気への蒸発	Degradation to bromide ion in soil; evaporation to air
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください

信頼性の判断根拠 出典	Brown, A.L., Burau, R.G., Meyer, R.D., Raski, D.J., Wilhelm, S., Quick, J., 1979. Plant uptake of bromide following soil fumigation with methyl bromide. Calif. Agric., 33: 11-13. Daelemans, A. 1978. Uptake of methyl bromide by plants and uptake of bromide from decontaminated soils. Leuven, Belgium, Catholic University (Dissertation) (in Flemish). Herzel and Schmidt, 1984 Maw, G.A., Kempton, R.J., 1973. Methyl bromide as a soil fumigant. Soils Fertil., 36:41-47. Moje, W. 1960. The chemistry and nematocidal activity of organic halicides. In: Metcalf RL, ed. Volume III. Advances in pest control research. New York, IntersciencePublishers, pp. 181-217.	Brown, A.L., Burau, R.G., Meyer, R.D., Raski, D.J., Wilhelm, S., Quick, J., 1979. Plant uptake of bromide following soil fumigation with methyl bromide. Calif. Agric., 33: 11-13. Daelemans, A. 1978. Uptake of methyl bromide by plants and uptake of bromide from decontaminated soils. Leuven, Belgium, Catholic University (Dissertation) (in Flemish). Herzel and Schmidt, 1984 Maw, G.A., Kempton, R.J., 1973. Methyl bromide as a soil fumigant. Soils Fertil., 36:41-47. Moje, W. 1960. The chemistry and nematocidal activity of organic halicides. In: Metcalf RL, ed. Volume III. Advances in pest control research. New York, IntersciencePublishers, pp. 181-217.
引用文献	(16) (22) (46) (78) (86)	(16) (22) (46) (78) (86)
備考		

3.3.2 分配

3.4 好気性生分解性

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法	EPA Pesticide Assessment Guidelines, Subdivision N, Chemistry; Environmental Fate, (ガイドライン Nos. 162-1 and 162-2)	EPA Pesticide Assessment Guidelines, Subdivision N, Chemistry; Environmental Fate, (Guideline Nos. 162-1 and 162-2)
培養期間		
植種源		
GLP	不明	不明
試験を行った年		
試験条件	タイプ:好気性と嫌気性(英文参照)	Methyl bromide gas (200,000 ppm) was introduced into airtight stainless steel boxes containing two types of soil, sandy loam and clay loam, under 1) aerobic and anaerobic and 2) sterile and non-sterile conditions. For sandy loam soil, aerobic loss half-life was 35 hours (unsterile) and 47 hours (sterile); anaerobic loss half-life was 144 hr (unsterile) and 80 hr (sterile). For clay loam soil, aerobic loss half-life was 3.8 hours (unsterile) and 2.5 hours (sterile); anaerobic loss half-life was 39 hr (unsterile) and 34 hr (sterile). Sterilization of soil was thought to introduce additional absorption sites, possibly accounting for shorter half-lives in sterilized clay. First order differences were not seen between aerobic and anaerobic tests. Introduction of methyl bromide was considered to inhibit microbial activity in non-sterilized soils. Type: aerobic and anaerobic Inoculum: non-adapted and sterilized Medium: soil
試験物質濃度	200000 ppm	Concentration: 200000 ppm methyl bromide
汚泥濃度		
培養温度 °C		
対照物質および濃度(mg/L)		
分解度測定方法		
分解度算出方法		
結果		
最終分解度(%) 日目	(%)(日目)	(%)(日目)
分解速度-1		
分解速度-2		
分解速度-3		
分解速度-4		
分解生成物		
上記結果以外の分解度測定方法及びその結果		
対象物質の7, 14日目の分解度		
その他		
結論	好気性の半減期は35時間(滅菌無し)と47時間(滅菌あり)。嫌気性の半減期は144時間(滅菌無し)と80時間(滅菌あり)。	aerobic loss half-life was 35 hours (unsterile) and 47 hours (sterile); anaerobic loss half-life was 144 hr (unsterile) and 80 hr (sterile).
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Radian Report, 1988. Final Report for the Environmental Fate Studies of Methyl Bromide. Conducted by Radian Corporation, Austin, TX, for the Methyl Bromide Industry Panel of the Chemical Manufacturers Association, Arlington, VA, Report DCN: 88-266-040-03, RC No.: 266 -040-04-01.	Radian Report, 1988. Final Report for the Environmental Fate Studies of Methyl Bromide. Conducted by Radian Corporation, Austin, TX, for the Methyl Bromide Industry Panel of the Chemical Manufacturers Association, Arlington, VA, Report DCN: 88-266-040-03, RC No.: 266 -040-04-01.
引用文献	(104)	(104)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法	その他: 閉鎖系ボトル	other: Closed bottle
培養期間		
植種源	活性汚泥	activated sludge
GLP	不明	不明
試験を行った年		

試験条件	濃度: 5.01 mg/l 培地: 土壌 汚泥: 2 mg/liter	Concentration: 5.01 mg/l Medium: soil Sludge, 2 mg/liter
試験物質濃度		
汚泥濃度		
培養温度 °C		
対照物質および濃度(mg/L)		
分解度測定方法		
分解度算出方法		
結果		
最終分解度(%) 日目	17 % (28日後)	17 % after 28 days
分解速度-1		
分解速度-2		
分解速度-3		
分解速度-4		
分解生成物		
上記結果以外の分解度測定方法及びその結果		
対象物質の7, 14日目の分解度		
その他		
結論		
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	IUCLID, 1996. International Uniform Chemical Information Database. Database generated and maintained by the European Chemicals Bureau for Existing Chemicals, Edition 1 – 1996, European Commission.	IUCLID, 1996. International Uniform Chemical Information Database. Database generated and maintained by the European Chemicals Bureau for Existing Chemicals, Edition 1 – 1996, European Commission.
引用文献	(63)	(63)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
培養期間		
植種源		
GLP	不明	不明
試験を行った年		
試験条件		
試験物質濃度		
汚泥濃度		
培養温度 °C		
対照物質および濃度(mg/L)		
分解度測定方法		
分解度算出方法		
結果		
最終分解度(%) 日目	(%)(日目)	(%)(日目)
分解速度-1		
分解速度-2		
分解速度-3		
分解速度-4		
分解生成物		
上記結果以外の分解度測定方法及びその結果		
対象物質の7, 14日目の分解度		
その他		
結論	メタン資化性菌(Methylophilic bacteria)は、臭化メチルをホルムアルデヒドへ酸化するおそれがある。	Methylophilic bacteria may oxidize methyl bromide to formaldehyde
注釈		
信頼性スコア	選択してください	選択してください
信頼性の判断根拠	選択してください	選択してください
出典	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan. HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).	Howard, P.H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volume I: Large Production and Priority Pollutants. Pp 386-393, Lewis Publishers, Chelsea, Michigan. HSDB, 1999. Hazardous Substances Data Bank. Database generated and maintained by the National Institute of Occupational Safety and Health (NIOSH).
引用文献	(55) (56)	(55) (56)
備考		

3.5. BOD-5、CODまたはBOD-5／COD比

3.6 生物濃縮性

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法	実測値であるlogオクタノール/水の分配係数: 1.10を用いて見積もった。(以下、英文参照)	Estimated using a measured log octanol/water partitioncoefficient of 1.10. This value indicates that methyl bromide accumulation will not be significant in aquatic species.
生物種		
暴露期間 (日)		
曝露濃度		
排泄期間		

GLP	不明	不明
試験を行った年		
分析方法		
試験条件		
被験物質溶液		
対照物質		
対照物質名及び分析方法	不明	不明
試験方式／実施		
結果		
死亡率／行動		
脂質含有量 (%)		
試験中の被験物質濃度		
濃縮係数(BCF)	BCF = 4.7 (推算値)	BCF = 4.7 (estimated)
取込／排泄定数		
排泄時間		
代謝物		
その他の観察		
結論		
注釈		
信頼性スコア	選択してください	選択してください
	選択してください	選択してください
信頼性の判断根拠		
出典	Lyman, W.J., Reehl, W.F., Rosenblatt, D.H, 1982. Handbook of Chemical Property Estimation Methods, Environmental Behavior of Organic Compounds, McGraw-Hill, New York.	Lyman, W.J., Reehl, W.F., Rosenblatt, D.H, 1982. Handbook of Chemical Property Estimation Methods, Environmental Behavior of Organic Compounds, McGraw-Hill, New York.
引用文献	(74)	(74)
備考		

項目名	和訳結果	原文																												
4-1 魚への急性毒性																														
試験物質	ブロモメタン	bromomethane																												
同一性	74-83-9 純度: 99.87% 供給時の状態: 重さ10ポンドのシリンダー5本に入った液状ガス (加圧) Lot 6RL4 供給者:Great Lakes Chemical Corporation	74-83-9 Purity: 99.87% Supplied as: Liquefied gas (under pressure) in five 10-pound cylinders, Lot 6RL4, from Great Lakes Chemical Corporation.																												
方法	(英文参照)	Series 72-2 (FIFRA Guideline, Subdivision E). Study was conducted in accordance with EPA Pesticide Assessment Guidelines, Subdivision E Hazard Evaluation: Wildlife and Aquatic Organisms (EPA 540/9-82-024, 1982). Other references used to generate the protocol included US EPA "Standard Evaluation procedures, Acute Toxicity Test for Freshwater Fish" EPA540/9-85-006) and ASTM "Standard Practice for Conducting Acute Toxicity Tests with Fishes, Macroinvertebrates and Amphibians" (ASTM E 729-88). Study Design																												
GLP	はい	はい																												
試験を行った年	1993	1993																												
魚種、系統、供給者	ニジマス (淡水魚)	Oncorhynchus mykiss (Fish, fresh water)																												
エンドポイント	96h-LC50	96h-LC50																												
試験物質の分析の有無	あり	あり																												
試験物質の分析方法	試料採取: 0時間目、96時間目 方法: 水素炎イオン化型検出器設置ガスクロマトグラフィー	Analytical monitoring: Sampled at 0 and 96 hours using a gas chromatograph equipped with a flame ionization detector.																												
結果の統計解析手法	Probit分析	Statistical Methods: Probit analysis using the binomial																												
試験条件																														
試験魚の月齢、体長、体重	試験開始時の月齢: 幼魚 平均体長(対照群): 23 mm (幅: 21 ~ 24 mm). 平均体重 (対照群): 0.13 g/魚 (幅: 0.10 to 0.16 grams).	Age at start of study: Juveniles. Average length (control group): 23 mm (ranging from 21 to 24 mm). Average weight (control group): 0.13 g/fish (ranging from 0.10 to 0.16 grams).																												
試験用水量あたりの魚体重	0.16 g魚/ l水	0.16 gram fish per liter of water.																												
参照物質での感受性試験結果																														
じゅん化条件																														
希釈水源																														
希釈水の化学的性質																														
試験溶液 (及び保存溶液) とその調製法	(英文参照)	Exposure solutions: Prepared by injecting a known volume of methyl bromide gas through a septum into the chamber containing the test water.																												
試験物質の溶液中での安定性																														
溶解助剤/溶剤の種類とその濃度																														
暴露容器	約 4 リットル	Chamber volume: Approximately 4 liters																												
暴露期間	96時間	96 hour(s)																												
試験方式	止水	止水																												
換水率/換水頻度																														
連数、1連当たりの魚数	20匹/濃度、 (4連 x 5匹/連)	Animals/sex/dose: 20/concentration (4 replicates x 5trout/replicate).																												
影響が観察された少なくとも1濃度区及び対照区における水質	溶存酸素: > 60% (8.0 – 8.8 mg/L) pH: 8.3 硬度: 136 (CaCO3換算) 伝導度: 333 μ mohms/cm	Dissolved oxygen: >60% (8.0 – 8.8 mg/L). Water pH: 8.3. Water hardness: 136 as CaCO3. Water conductivity: 333 μ mohms/cm																												
試験温度範囲	12 ± 1℃	Chamber temperature: 12 ± 1 oC.																												
照明の状態	明/暗サイクル: 16時間/8時間	Light cycle: 16 hrs light; 8 hrs dark																												
平均測定濃度の計算方法																														
結果																														
設定濃度	(英文参照)	<table><tr><td>Group</td><td>Methyl Bromide Concentration (mg/L)Target (Nominal)</td><td>Methyl Bromide Concentration (mg/L)Actual (Measured)*</td><td>No/Concentr.</td></tr><tr><td>Negative Control</td><td>0</td><td>0</td><td>20</td></tr><tr><td>1</td><td>1.0</td><td>1.3</td><td>20</td></tr><tr><td>2</td><td>1.7</td><td>1.9</td><td>20</td></tr><tr><td>3</td><td>2.9</td><td>2.9</td><td>20</td></tr><tr><td>4</td><td>4.8</td><td>4.6</td><td>20</td></tr><tr><td>5</td><td>8.0</td><td>7.7</td><td>20</td></tr></table> <p>* No standard deviation provided. Test subjects (species, strain & sex): Rainbow trout (Mt. Lassen Trout Farm, Red Bluff, CA).</p>	Group	Methyl Bromide Concentration (mg/L)Target (Nominal)	Methyl Bromide Concentration (mg/L)Actual (Measured)*	No/Concentr.	Negative Control	0	0	20	1	1.0	1.3	20	2	1.7	1.9	20	3	2.9	2.9	20	4	4.8	4.6	20	5	8.0	7.7	20
Group	Methyl Bromide Concentration (mg/L)Target (Nominal)	Methyl Bromide Concentration (mg/L)Actual (Measured)*	No/Concentr.																											
Negative Control	0	0	20																											
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2	1.7	1.9	20																											
3	2.9	2.9	20																											
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Group	Methyl Bromide Concentration (mg/L)Target (Nominal)	Methyl Bromide Concentration (mg/L)Actual (Measured)*	No/Concentr.																											
Negative Control	0	0	20																											
1	1.0	1.3	20																											
2	1.7	1.9	20																											
3	2.9	2.9	20																											
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5	8.0	7.7	20																											

生物学的影響観察	臨床徴候 NOAEL = 1.9 mg/L. 臨床徴候 LOAEL = 2.9 mg/L. (詳細は英文参照)	Clinical signs: No signs of toxicity were apparent at the two lowest exposure concentrations of 1.3 and 1.9 mg/L at any time point. For the mid-exposure group (2.9 mg/L), some toxicity occurred that included lethargy and discoloration in a low percentage of the fish (4 of 20) at 48 hours that increased in severity and frequency with time and also included loss of equilibrium in some subjects by the end of the exposure period. (No mortality occurred at this exposure level). At the next dose level of 4.6 mg/L, adverse signs also began to occur at 48 hours and were similar in nature but were more severe and occurred in more subjects. At the highest concentration of 7.7 mg/L, adverse signs began to occur after only 24 hours and quickly were lethal (see below). Clinical signs NOAEL = 1.9 mg/L. Clinical signs LOAEL = 2.9 mg/L.																				
累積死亡率の表	死亡率 NOAEL = 2.9 mg/L 死亡率 LOAEL = 4.6 mg/L (詳細は英文参照)	Morbidity/mortality: No mortality occurred at the three lowest exposure concentrations of 1.3, 1.9, and 2.9 mg/L. In the 4.6 mg/L group, two of 20 trout were dead after 48 hours, 7 were dead after 72 hours, and 17 after 96 hours. At the highest exposure concentration of 7.7 mg/L, mortality was 10% (2 of 20) after 24 hours and 100% after 48 hours. Mortality NOAEL = 2.9 mg/L. Mortality LOAEL = 4.6 mg/L.																				
統計的結果	(詳細は英文参照)	The LC50 values for trout exposed to methyl bromide at various time points are listed below. <table><thead><tr><th></th><th>MeBr Conc. (mg/L)</th><th>Lower 95% Confidence Limit</th><th>Upper 95% Confidence Limit</th></tr></thead><tbody><tr><td>24-hr LC50</td><td>> 7.7</td><td>N/A</td><td>N/A</td></tr><tr><td>48-hr LC50</td><td>5.6</td><td>4.6</td><td>7.7</td></tr><tr><td>72-hr LC50</td><td>5.0</td><td>2.9</td><td>7.7</td></tr><tr><td>96-hr LC50</td><td>3.9</td><td>2.9</td><td>4.6</td></tr></tbody></table> The Mortality NOAEL is 2.9 mg/L. The clinical signs NOAEL is 1.9.		MeBr Conc. (mg/L)	Lower 95% Confidence Limit	Upper 95% Confidence Limit	24-hr LC50	> 7.7	N/A	N/A	48-hr LC50	5.6	4.6	7.7	72-hr LC50	5.0	2.9	7.7	96-hr LC50	3.9	2.9	4.6
	MeBr Conc. (mg/L)	Lower 95% Confidence Limit	Upper 95% Confidence Limit																			
24-hr LC50	> 7.7	N/A	N/A																			
48-hr LC50	5.6	4.6	7.7																			
72-hr LC50	5.0	2.9	7.7																			
96-hr LC50	3.9	2.9	4.6																			
注釈																						
対照区における死亡率																						
異常反応																						
その他の観察結果																						
結論																						
結果 (96h-LC50)	NOEC: 2.9 mg/l LC50: 3.9 mg/l LOEC : 4.6 mg/l NOEL : 1.9 mg/l LOEL : 2.9 mg/l	NOEC: 2.9 mg/l LC50: 3.9 mg/l LOEC : 4.6 mg/l NOEL : 1.9 mg/l LOEL : 2.9 mg/l																				
信頼性スコア	1. 制限なく信頼性あり	1. 制限なく信頼性あり																				
信頼性の判断根拠	データの質は高いと考えられる。報告書には方法と結果が包括的に記載されている。信頼ある試験機関が試験を実施した。	The data quality from this study is considered high. The report included comprehensive documentation for method and results. The conducting laboratory is reputable.																				
出典	Drottar, K.R., Swigert, J.P., 1993. Methyl Bromide: A 96-Hour Static Acute Toxicity Test with the Rainbow Trout (Oncorhynchus mykiss), Final Report. Unpublished report from Wildlife International, Ltd. Project No. 264A-105A. Stephan, C.E., 1977. Methods for Calculating an LC50, Pages 65-81 in "Aquatic Toxicology and Hazard Evaluations," American Society for Test and Materials. Publication Number STP 634. Philadelphia, PA.	Drottar, K.R., Swigert, J.P., 1993. Methyl Bromide: A 96-Hour Static Acute Toxicity Test with the Rainbow Trout (Oncorhynchus mykiss), Final Report. Unpublished report from Wildlife International, Ltd. Project No. 264A-105A. Stephan, C.E., 1977. Methods for Calculating an LC50, Pages 65-81 in "Aquatic Toxicology and Hazard Evaluations," American Society for Test and Materials. Publication Number STP 634. Philadelphia, PA.																				
引用文献	(29) (123)	(29) (123)																				
備考																						

4-2 水生無脊椎動物への急性毒性(例えばミジンコ)

試験物質	ブロモメタン	bromomethane
同一性	74-83-9 純度: 99.87% 供給時の状態: 重さ10ポンドのシリンダー5本に入った液状ガス(加圧) Lot 6RL4 供給者: Great Lakes Chemical Corporation	74-83-9 Purity: 99.87% Supplied as: Liquefied gas (under pressure) in five 10-pound cylinders, Lot 6RL4, from Great Lakes Chemical Corporation.
方法	(英文参照)	According to a statement that is part of the study report, signed by the Study Director, this study was conducted in accordance with Good Laboratory Practices (40 CFR Part 160, EPA/FIFRA Good Laboratory Practice Regulations and OECD, ISBN 92-84-12367-9, Paris 1982). Study was observed and audited by laboratory Quality Assurance personnel.
GLP	はい	はい
試験を行った年	1993	1993
生物種、系統、供給者	オオミジンコ(甲殻類)	Daphnia magna (Crustacea)
エンドポイント	48h-EC50	48h-EC50
試験物質の分析の有無	あり	あり
試験物質の分析方法	試料採取: 0時間目、48時間目 方法: 水素炎イオン化型検出器設置ガスクロマトグラフィー	Sampled at 0 and 48 hours using a gas chromatograph equipped with a flame ionization detector.
結果の統計解析手法		
試験条件		
試験生物の起源、前処理、繁殖方法		
試験開始時の時間齢		
希釈水源		
希釈水の化学的性質		
試験溶液(及び保存溶液)とその調製法		
試験物質の溶液中での安定性		
溶解助剤/溶剤の種類とその濃度		

暴露容器	密閉プラスチックボトル 容量:125 ml	Exposure chamber description: Sealed plastic serum bottles filled with water and having no headspace. Chamber volume: 125 ml.																												
暴露期間	48時間	48 hours																												
試験方式	止水、閉鎖系	static, closed system																												
連数、1連当たりの試験生物数	20匹/濃度、（4連 x 5匹/連）	Animals/sex/dose: 20/concentration (4 replicates x 5 daphnids/replicate)																												
対照区と影響が観察された少なくとも1濃度区における水質	溶存酸素: > 60% (8.0 – 8.8 mg/L) pH: 8.5 – 8.6 硬度: 140 – 186 mg/L (CaCO3換算) 伝導度: 340 μ mohms/cm	Dissolved oxygen: >60% (8.0 – 8.8 mg/L). Water pH: 8.5 – 8.6. Water hardness: 140 – 186 mg/L as CaCO3. Water conductivity: 340 μ mohms/cm.																												
試験温度範囲	20 ± 1℃	Chamber temperature: 20 ± 1 oC.																												
照明の状態	明/暗サイクル: 16時間/8時間	16 hrs light; 8 hrs dark																												
平均測定濃度の計算方法																														
結果																														
設定濃度	(英文参照)	<table><thead><tr><th>No./Concentr.</th><th>Group Methyl Bromide Concentration (mg/L) Target (Nominal)</th><th>Methyl Bromide Concentration (mg/L) Actual (Measured)*</th><th></th></tr></thead><tbody><tr><td>Negative Control</td><td>0</td><td>0</td><td>20</td></tr><tr><td>1</td><td>1.3</td><td>1.2</td><td>20</td></tr><tr><td>2</td><td>2.2</td><td>2.2</td><td>20</td></tr><tr><td>3</td><td>3.6</td><td>3.5</td><td>20</td></tr><tr><td>4</td><td>6.0</td><td>5.8</td><td>20</td></tr><tr><td>5</td><td>10</td><td>9.8</td><td>20</td></tr></tbody></table> <p>* No standard deviation provided. Test subjects: Daphnia magna from in-house cultures. Route of administration: Respiration, whole-body.</p>	No./Concentr.	Group Methyl Bromide Concentration (mg/L) Target (Nominal)	Methyl Bromide Concentration (mg/L) Actual (Measured)*		Negative Control	0	0	20	1	1.3	1.2	20	2	2.2	2.2	20	3	3.6	3.5	20	4	6.0	5.8	20	5	10	9.8	20
No./Concentr.	Group Methyl Bromide Concentration (mg/L) Target (Nominal)	Methyl Bromide Concentration (mg/L) Actual (Measured)*																												
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実測濃度	(英文参照)	<table><thead><tr><th>No./Concentr.</th><th>Group Methyl Bromide Concentration (mg/L) Target (Nominal)</th><th>Methyl Bromide Concentration (mg/L) Actual (Measured)*</th><th></th></tr></thead><tbody><tr><td>Negative Control</td><td>0</td><td>0</td><td>20</td></tr><tr><td>1</td><td>1.3</td><td>1.2</td><td>20</td></tr><tr><td>2</td><td>2.2</td><td>2.2</td><td>20</td></tr><tr><td>3</td><td>3.6</td><td>3.5</td><td>20</td></tr><tr><td>4</td><td>6.0</td><td>5.8</td><td>20</td></tr><tr><td>5</td><td>10</td><td>9.8</td><td>20</td></tr></tbody></table> <p>* No standard deviation provided. Test subjects: Daphnia magna from in-house cultures. Route of administration: Respiration, whole-body.</p>	No./Concentr.	Group Methyl Bromide Concentration (mg/L) Target (Nominal)	Methyl Bromide Concentration (mg/L) Actual (Measured)*		Negative Control	0	0	20	1	1.3	1.2	20	2	2.2	2.2	20	3	3.6	3.5	20	4	6.0	5.8	20	5	10	9.8	20
No./Concentr.	Group Methyl Bromide Concentration (mg/L) Target (Nominal)	Methyl Bromide Concentration (mg/L) Actual (Measured)*																												
Negative Control	0	0	20																											
1	1.3	1.2	20																											
2	2.2	2.2	20																											
3	3.6	3.5	20																											
4	6.0	5.8	20																											
5	10	9.8	20																											
遊泳阻害数	遊泳阻害 NOAEL = 1.2 mg/L. 遊泳阻害 LOAEL = 2.2 mg/L. 死亡率 NOAEL = 1.2 mg/L. 死亡率 LOAEL = 2.2 mg/L. (詳細は英文参照)	After 24 hours, no immobilization was apparent at the next two higher exposure levels of 2.2 and 3.5 mg/L. Immobilization was apparent after 24 hours in about half the daphnia exposed to 5.8 mg/L and in all the daphnia at 9.8 mg/L. These incidences roughly corresponded to the incidence of mortality. A methyl bromide concentration of 2.2 mg/L for 48 hours caused immobilization in 2 of 20 daphnids and concentrations higher than this caused immobilization or death in all subjects. 48-hr Immobilization NOAEL = 1.2 mg/L. Immobilization LOAEL = 2.2 mg/L. Morbidity/mortality: No mortality was apparent at the low-exposure concentration of 1.2 mg/L at any time point. At 24 hours, no mortality was apparent at the next two higher exposure levels of 2.2 and 3.5 mg/L; however, one daphnid was dead after 48 hours in the 2.2 mg/L group and all daphnids were dead after 48 hours exposure to 3.5 mg/L. At 5.8 mg/L, mortality was 75% after 24 hours and 100% after 48 hours. At 9.8 mg/L, all daphnids were dead by 24 hours. Mortality NOAEL = 1.2 mg/L. Mortality LOAEL = 2.2 mg/L.																												
累積遊泳阻害数の表																														
注釈	オオミジンコ 48-hour EC50: 2.6 mg/L (2.2 mg/L < 95%信頼限界 < 3.5 mg/L) 遊泳阻害または死亡率 48-hour NOAEL: 1.2 mg/L. 遊泳阻害または死亡率 48-hour LOAEL: 2.2 mg/L.	The 48-hour EC50 value for Daphnia magna exposed to methyl bromide was 2.6 mg/L (2.2 mg/L < 95% Confidence Limit < 3.5 mg/L). The 48-hour NOAEL for either immobilization or mortality was 1.2 mg/L. The 48-hour LOAEL for either immobilization or mortality was 2.2 mg/L.																												
対照区における反応は妥当か	選択して下さい	選択して下さい																												
対照区における反応の妥当性の考察	選択して下さい	選択して下さい																												
結論																														
結果(48h-EC50)	48h-EC50 = 2.6 mg/l 48h-NOEC = 1.2 mg/l	48h-EC50 = 2.6 mg/l 48h-NOEC = 1.2 mg/l																												
信頼性スコア	1. 制限なく信頼性あり	1. 制限なく信頼性あり																												
信頼性の判断根拠	データの質は高いと考えられる。報告書には方法と結果が包括的に記載されている。信頼ある試験機関が試験を実施した。	report included comprehensive documentation for method and results. The conducting laboratory is reputable.																												
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引用文献	(29) (127)	(29) (127)																												
備考																														

4-3 水生植物への毒性(例えば藻類)

試験物質	ブロモメタン	bromomethane
同一性	74-83-9 純度 >99.9%	74-83-9 Purity >99.9%
方法	(英文参照)	other: Concept-standards NEN 6501, 6502, 6504 and 6506 (1 to 4) of Dutch Institute of Normalization
GLP	不明	不明
試験を行った年	1980	1980
生物種、系統、供給者	Chlorella pyrenoidosa、 Scenedesmus quadricauda	Test species, strain: Chlorella pyrenoidosa and Scenedesmus quadricauda
エンドポイント	生長速度	growth rate
毒性値算出に用いたデータの種類		
試験物質の分析の有無	あり	あり
試験物質の分析方法	試料採取: 0時間目、48時間目(最高濃度～最低濃度) 方法: ガスクロマトグラフィー	Sampled at 0 and 48 hours from highest and lowest concentration. Analysis was performed by a gas chromatographic method.
結果の統計解析手法	なし	Statistical Methods: Not given
試験条件		
試験施設での藻類継代培養方法		
藻類の前培養の方法及び状況		
参照物質での感受性試験結果		
希釈水源		
培地の化学的性質		
試験溶液(及び保存溶液)とその調製法		
試験物質の溶液中での安定性		
溶解助剤/溶剤の種類とその濃度		
暴露容器	密閉 容量: 300 ml	Exposure chamber description: Enclosed chambers. Chamber volume: 300 ml
暴露期間	48時間	48 hours
試験方式	止水	止水
連数		
各濃度区の少なくとも1連における試験開始時と終了時の水質	pH: 7.7 硬度: 54.05 mg/L CaCO ₃ 伝導度: なし ばく露溶液: なし	pH: 7.7 hardness: 54.05 mg/L CaCO ₃ conductivity: Not given Exposure solutions: Not given
試験温度範囲	チャンバー温度: 24 ± 1°C	Chamber temperature: 24 ± 1°C
照明の状態	連続照明 (>5000 lux)	Continuous (>5000 lux)
平均測定濃度の計算方法		
結果		
設定濃度		
実測濃度		
細胞密度		
生長阻害率(%)		
各濃度区における生長曲線		
その他観察結果		
注釈	臭化メチルにより、藻類の濃度依存の生長阻害が生じた。 Chlorella pyrenoidosaに対して: EC50 24-hour: 2.1 ~ 6.7 mg/L EC50 24-hour: 5.0 mg/L Scenedesmus quadricaudaに対して: EC50 24-hour: 2.2 mg/L EC50 24-hour: 3.2 mg/L (詳細は英文参照)	Methyl bromide caused a concentration dependent inhibition of algal growth The 24-hour and 48-hour EC50 values for Chlorella pyrenoidosa were 2.1 to 6.7 mg/L and 5.0 mg/L, respectively, when corrected for analytical measurements performed on the highest and lowest concentrations. Similarly, the 24-hour and 48-hour EC50 values for Scenedesmus quadricauda were 2.2 mg/L and 3.2 mg/L, respectively, when analytical correction was made.
対照区での生長は妥当か	不明	不明
対照区における反応の妥当性の考察	不明	不明
結論		
結果(ErC50)	48h-EC50 = 5 mg/l	48h-EC50 = 5 mg/l
結果(NOEC)		
信頼性スコア	選択して下さい	選択して下さい
信頼性の判断根拠		
出典	Canton, J.H., Wegman, R.C.C., Mathijssen-Spickman, E.A.M. and Wammes, J.Y., (1980). Hydrobiological toxicological research with methyl bromide. National Institute of Public Health and Environmental Hygiene, Report No. 105/80	Canton, J.H., Wegman, R.C.C., Mathijssen-Spickman, E.A.M. and Wammes, J.Y., (1980). Hydrobiological toxicological research with methyl bromide. National Institute of Public Health and Environmental Hygiene, Report No. 105/80
引用文献	(19)	(19)
備考		

試験物質	ブロモメタン	bromomethane
同一性	74-83-9 純度 >99.9%	74-83-9 Purity >99.9%
方法	(英文参照)	other: Concept-standards NEN 6501, 6502, 6504 and 6506 (1 to 4) of Dutch Institute of Normalization
GLP	不明	不明
試験を行った年	報告年月日: 1980年8月	Report Date: August, 1980
生物種、系統、供給者	Chlorella pyrenoidosa、 Scenedesmus quadricauda	Test species, strain: Chlorella pyrenoidosa and Scenedesmus quadricauda
エンドポイント	生長速度	growth rate
毒性値算出に用いたデータの種類		
試験物質の分析の有無	あり	あり
試験物質の分析方法	試料採取: 0時間目、48時間目(最高濃度～最低濃度) 方法: ガスクロマトグラフィー	Sampled at 0 and 48 hours from highest and lowest concentration. Analysis was performed by a gas chromatographic method.
結果の統計解析手法	なし	Statistical Methods: Not given

試験条件		
試験施設での藻類継代培養方法		
藻類の前培養の方法及び状況		
参照物質での感受性試験結果		
希釈水源		
培地の化学的性質		
試験溶液(及び保存溶液)とその調製法		
試験物質の溶液中での安定性		
溶解助剤/溶剤の種類とその濃度		
暴露容器	閉鎖系 300 ml	Exposure chamber description: Enclosed chambers. Chamber volume: 300 ml
暴露期間	48時間	48 hours
試験方式	止水	止水
連数		
各濃度区の少なくとも1連における試験開始時と終了時の水質	pH: 7.7 硬度: 54.05 mg/L CaCO3 伝導度: なし ばく露溶液: なし	pH: 7.7 hardness: 54.05 mg/L CaCO3 conductivity: Not given Exposure solutions: Not given
試験温度範囲	24 ± 1°C	Chamber temperature: 24 ± 1°C
照明の状態	連続照明 (>5000 lux)	Light cycle: Continuous (>5000 lux)
平均測定濃度の計算方法		
結果		
設定濃度		
実測濃度		
細胞密度		
生長阻害率(%)		
各濃度区における生長曲線		
その他観察結果		
注釈	臭化メチルにより、藻類の濃度依存の生長阻害が生じた。 Chlorella pyrenoidosaに対して: EC50 24-hour: 2.1 ~ 6.7 mg/L EC50 24-hour: 5.0 mg/L Scenedesmus quadricaudaに対して: EC50 24-hour: 2.2 mg/L EC50 24-hour: 3.2 mg/L (詳細は英文参照)	Methyl bromide caused a concentration dependent inhibition of algal growth. Supplied as: Unknown but received from British Drug House Conclusion: The 24-hour and 48-hour EC50 values for Chlorella pyrenoidosa were 2.1 to 6.7 mg/L and 5.0 mg/L, respectively, when corrected for analytical measurements performed on the highest and lowest concentrations. Similarly, the 24-hour and 48-hour EC50 values for Scenedesmus quadricauda were 2.2 mg/L and 3.2 mg/L, respectively, when analytical correction was made.
対照区での生長は妥当か	不明	不明
対照区における反応の妥当性の考察	不明	不明
結論		
結果(ErC50)	48h-EC50 = 3.2 mg/L	48h-EC50 = 3.2 mg/L
結果(NOEC)		
信頼性スコア	選択して下さい	選択して下さい
信頼性の判断根拠		
出典	Canton, J.H., Wegman, R.C.C., Mathijssen-Spickman, E.A.M. and Wammes, J.Y., (1980). Hydrobiological toxicological research with methyl bromide. National Institute of Public Health and Environmental Hygiene, Report No. 105/80	Canton, J.H., Wegman, R.C.C., Mathijssen-Spickman, E.A.M. and Wammes, J.Y., (1980). Hydrobiological toxicological research with methyl bromide. National Institute of Public Health and Environmental Hygiene, Report No. 105/80
引用文献	(19)	(19)
備考		

4-4 微生物への毒性(例えばバクテリア)

4-5 水生生物への慢性毒性

A. 魚への慢性毒性

試験物質	ブロモメタン	bromomethane
同一性	74-83-9	74-83-9
方法	試験タイプ: 半止水、閉鎖系 ばく露期間: 1ヶ月、及び3ヶ月 (濃度: 0.032~3.2 mg/l)	Type of test: semistatic, closed system Exposure period: 1 and 3 months to 0.032 - 3.2 mg/l
GLP	不明	不明
試験を行った年		
魚種、系統、供給者	グッピー(Poecilia reticulat) (淡水魚)	Poecilia reticulata (Fish, fresh water)
試験物質の分析の有無	あり	あり
試験物質の分析方法		
エンドポイント		
結果の統計解析手法		
試験条件		
試験魚の月齢、体長、体重		
餌の種類、給餌量、給餌頻度		
孵化後の移動までの時間		
最初の給餌までの時間		
試験開始2週間前までの疾病対策のための処理		
胚と仔魚の取扱方法		
暴露チャンバーの材質など		
試験溶液(及び保存溶液)とその調製法		
試験物質の溶液中での安定性		
溶解助剤/溶剤の種類とその濃度		
試験溶液の調製方法		
希釈水源		
希釈水の化学的性質		
暴露期間	90日間	90 days
その他		
測定項目、測定に伴うサンプル採取時期、サンプリング間隔、手順		

試験方式	半止水	半止水
結果		
用量設定試験の実施の有無	不明	不明
用量設定試験結果		
設定濃度		
実測濃度		
影響(対照区含む)		
胚、仔魚、稚魚の各成長段階及び全体における死亡／生存データ		
ふ化の開始時間及び終了時間		
各日のふ化した仔魚数		
生存個体の体長／体重		
奇形の発症した仔魚数		
異常行動を示す魚数		
その他の影響		
注釈	<p>3.2 mg/literでは、3日後に死亡率が100%となった。 1.0 mg/literでは、3週間後に死亡率が100%となった。 0.32 mg/literでは、雌雄の体重が顕著に減少した。</p> <p>内臓への病理組織学的傷害はなかった。 (詳細は英文参照)</p>	<p>At 3.2 mg/liter, 100% mortality after 3 days; at 1.0 mg/liter, 100% mortality within 3 weeks. At 0.32 mg/liter, significantly decreased weight in both sexes. No histopathological damage to internal organs.</p> <p>The chronic fish studies do not follow OECD guideline in that the reproductive parameters critical to long-term fish studies were not evaluated. The end-point of concern in the Wester studies was the development of histologic lesions in fish that received toxic to lethal doses of methyl bromide. No such lesions were seen. In addition, based on available data, it is unclear whether headspace was present. If headspace was present, given the physical chemical properties of Methyl bromide, analytical monitoring results would be questionable.</p>
結論		
EC50		
NOEC、LOEC	NOEC = 0.1 mg/l NOLC = 0.32 mg/l	NOEC = 0.1 mg/l (for behavior and appearance) NOLC = 0.32 mg/l
信頼性スコア	選択して下さい	選択して下さい
信頼性の判断根拠		
出典	Wester, P.W., Canton, J.H., Dormans, J.A.M.A., 1988. Pathologicals effects in freshwater fish <i>Poecilia reticulata</i> (guppy) and <i>ryzias latipes</i> (medaka) following methyl bromide and sodium bromide exposure. <i>Aquat. Toxicol.</i> , 12:323-343.	Wester, P.W., Canton, J.H., Dormans, J.A.M.A., 1988. Pathologicals effects in freshwater fish <i>Poecilia reticulata</i> (guppy) and <i>ryzias latipes</i> (medaka) following methyl bromide and sodium bromide exposure. <i>Aquat. Toxicol.</i> , 12:323-343.
引用文献	(137)	(137)
備考		

試験物質	ブロモメタン	bromomethane
同一性	74-83-9	74-83-9
方法	試験タイプ: 半止水 ばく露期間: 1ヶ月、及び3ヶ月 (濃度:0.032～3.2 mg/l)	Type of test: semi-static Exposure period: 1 and 3 months to 0.032-3.2 mg/l
GLP	不明	不明
試験を行った年		
魚種、系統、供給者	メダカ (淡水魚)	<i>Oryzias latipes</i> (Fish, fresh water)
試験物質の分析の有無	あり	Analytical monitoring: yes
試験物質の分析方法		
エンドポイント		
結果の統計解析手法		
試験条件		
試験魚の月齢、体長、体重		
餌の種類、給餌量、給餌頻度		
孵化後の移動までの時間		
最初の給餌までの時間		
試験開始2週間前までの疾病対策のための処理		
胚と仔魚の取扱方法		
暴露チャンバーの材質など		
試験溶液(及び保存溶液)とその調製法		
試験物質の溶液中での安定性		
溶解助剤/溶剤の種類とその濃度		
試験溶液の調製方法		
希釈水源		
希釈水の化学的性質		
暴露期間	90日間	90 days
その他		
測定項目、測定に伴うサンプル採取時期、サンプリング間隔、手順		
試験方式	半止水	半止水
結果		
用量設定試験の実施の有無	不明	不明
用量設定試験結果		
設定濃度		
実測濃度		
影響(対照区含む)		
胚、仔魚、稚魚の各成長段階及び全体における死亡／生存データ		
ふ化の開始時間及び終了時間		
各日のふ化した仔魚数		
生存個体の体長／体重		
奇形の発症した仔魚数		
異常行動を示す魚数		
その他の影響		

注釈	<p>3.2 mg/literでは、3日後に死亡率が100%となった。 1.0 mg/literでは、3週間後に死亡率が100%となった。 0.32 mg/literでは、雌雄の体重が顕著に減少した。</p> <p>内臓への病理組織学的傷害はなかった。</p> <p>(詳細は英文参照)</p>	<p>At 3.2 mg/liter, 100% mortality after 3 days; at 1.0 mg/liter, partial mortality within 3 weeks. At 0.32 mg/liter, significantly decreased weight in both sexes. No histopathological damage to internal organs.</p> <p>The chronic fish studies do not follow OECD guideline in that the reproductive parameters critical to long-term fish studies were not evaluated. The end-point of concern in the Wester studies was the development of histologic lesions in fish that received toxic to lethal doses of methyl bromide.</p> <p>No such lesions were seen. In addition, based on available data, it is unclear whether headspace was present. If headspace was present, given the physical chemical properties of Methyl bromide, analytical monitoring results would be questionable.</p>
結論		
EC50		
NOEC, LOEC	<p>NOEC = 0.56 mg/l (行動と外見)</p> <p>3ヵ月後: NOEC = 0.32 mg/l (行動と外見)e)</p> <p>NOLC = 0.32 mg/l</p>	<p>NOEC = 0.56 mg/l (behavior and appearance)</p> <p>After 3 months: NOEC = 0.32 mg/l (behavior and appearance)</p> <p>NOLC = 0.32 mg/l</p>
信頼性スコア	選択して下さい	選択して下さい
信頼性の判断根拠		
出典	Wester, P.W., Canton, J.H., Dormans, J.A.M.A., 1988. Pathologicals effects in freshwater fish <i>Poecilia reticulata</i> (guppy) and <i>ryzias latipes</i> (medaka) following methyl bromide and sodium bromide exposure. <i>Aquat. Toxicol.</i> , 12:323–343.	Wester, P.W., Canton, J.H., Dormans, J.A.M.A., 1988. Pathologicals effects in freshwater fish <i>Poecilia reticulata</i> (guppy) and <i>ryzias latipes</i> (medaka) following methyl bromide and sodium bromide exposure. <i>Aquat. Toxicol.</i> , 12:323–343.
引用文献	(137)	(137)
備考		

B. 水生無脊椎動物への慢性毒性

試験物質	ブロモメタン	bromomethane
同一性	74-83-9	74-83-9
方法	試験タイプ: 止水、閉鎖系	Type of test: static, closed-system
GLP	はい	はい
試験を行った年		
試験生物種	オオミジンコ(甲殻類)	<i>Daphnia magna</i> (Crustacea)
試験物質の分析の有無	データなし	Analytical monitoring: no data
試験物質の分析方法		
エンドポイント		
結果の統計解析手法		
試験条件		
助剤使用の有無	不明	不明
助剤の種類、濃度、助剤対照区の有無	不明	不明
試験温度		
pH		
硬度		
試験生物の情報		
希釈水源		
希釈水の化学的性質		
試験溶液(及び保存溶液)とその調製法		
試験物質の溶液中での安定性		
溶解助剤/溶剤の種類とその濃度		
暴露期間		
暴露容器		
連数、1連当たりの試験生物数		
照明		
対照区と影響が観察された少なくとも1濃度区における水質		
平均測定濃度の計算方法		
結果		
設定濃度		
実測濃度		
実測濃度の詳細		
累積遊泳阻害数		
累積産仔数		
対照区における反応は妥当か	不明	不明
生理的影響		
試験の妥当性		
注釈	<p>著者の結論: 死亡率が高い理由は明らかでない。</p> <p>(詳細は英文参照)</p>	<p>Effect on reproduction at 0.1 mg/l. Studies conducted in closed glass bottles without aeration (pH 8.2, 19oC, O2>6.5 mg/l, aCO3=209.4 mg/l). The study author concluded that “The reason for the high mortality is not clear: it could be a result of a transient decrease in the overall viability of the <i>Daphnia Magna</i> population.” The authors recommended a repeat of this study. The results of this study are considered questionable at best.</p>
結論		
結果(EC50)		
結果(NOEC, LOEC)		
信頼性スコア	選択して下さい	選択して下さい
信頼性の判断根拠		
出典	Canton, J.H., Wegman, R.C.C., Mathijssen-Spickman, E.A.M. and Wammes, J.Y., (1980). Hydrobiological toxicological research with methyl bromide. National Institute of Public Health and Environmental Hygiene, Report No. 105/80	Canton, J.H., Wegman, R.C.C., Mathijssen-Spickman, E.A.M. and Wammes, J.Y., (1980). Hydrobiological toxicological research with methyl bromide. National Institute of Public Health and Environmental Hygiene, Report No. 105/80
引用文献	(19)	(19)
備考		

4-6 陸生生物への毒性

A. 陸生植物への毒性

試験物質	ブロモメタン	bromomethane
同一性	74-83-9	74-83-9
方法	(英文参照)	Rice seeds were found to absorb more methyl bromide than corn seeds. Seeds with higher moisture content absorbed more and seeds with the same moisture content absorbed more at higher temperatures than at lower temperatures.
試験の種類	選択して下さい	選択して下さい
GLP	いいえ	いいえ
試験を行った年		
種	Oryza sativa (コメ)、Zea mays (トウモロコシの種)	Oryza sativa (Rice, Japicona) and Zea mays (Corn (Maize) Seeds)
試験物質の分析の有無	選択して下さい	選択して下さい
試験物質の分析方法		
エンドポイント	発芽、生長	Emergence, growth
暴露期間		
試験条件		
結果		
毒性値		
注釈	湿度11%の米では4mg/Lまで影響は見られなかった。 (詳細は英文参照)	No detrimental effect up to 4 mg/liter was observed in rice seeds at a moisture content of 11%, but as the moisture content and temperature increased, methyl bromide had an increasing effect on germination. Maize seeds were much more tolerant. Exposure to 5 mg/l did not produce any harmful effects on the germination of maize seeds. At concentrations higher than 10 mg/l, the viability of maize seeds declined in a similar way to that of rice seeds.
信頼性スコア	選択して下さい	選択して下さい
信頼性の判断根拠		
出典	Sittisuang, P. Nakakita, H., 1985. The effect of phosphine and methyl bromide on germination of rice and corn seeds. J. Pestic. Sci., 10:461-468.	Sittisuang, P. Nakakita, H., 1985. The effect of phosphine and methyl bromide on germination of rice and corn seeds. J. Pestic. Sci., 10:461-468.
引用文献	(118)	(118)
備考		

試験物質	ブロモメタン	bromomethane
同一性	74-83-9	74-83-9
方法		
試験の種類	選択して下さい	選択して下さい
GLP	不明	不明
試験を行った年		
種	Lactuca sativa capitata (レタス) Nasturtium officinale (オランダガラシ)	Lactuca sativa capitata (Lettuce) and Nasturtium officinale (Water Cress)
試験物質の分析の有無	選択して下さい	選択して下さい
試験物質の分析方法		
エンドポイント	発芽、生長	Emergence, growth
暴露期間	72時間	72 hours
試験条件	ばく露期間: 72時間 (濃度:4~1400 mg/m3)	Exposure period: 72 hours at concentrations between 4 and 1400 mg/m3
結果		
毒性値		
注釈	400 mg/m3でレタスの葉が黄変した。	At 400 mg/m3, yellowing of lettuce leaves became apparent, while no apparent visible effects were observed on watercress up to the highest concentration.
信頼性スコア	選択して下さい	選択して下さい
信頼性の判断根拠		
出典	Reichmuth, C. Noack, S. 1983. [Environmental effects of the fumigation of commodities.] Technol. Z. Getreide Mehl Backwaren, 37:139-144 (in German).	Reichmuth, C. Noack, S. 1983. [Environmental effects of the fumigation of commodities.] Technol. Z. Getreide Mehl Backwaren, 37:139-144 (in German).
引用文献	(105)	(105)
備考		

B. 土壌生物への毒性

C. 他の非哺乳類陸生種(鳥類を含む)への毒性

試験物質	ブロモメタン	bromomethane
同一性	74-83-9	74-83-9
同一性		
試験の種類	選択して下さい	選択して下さい
GLP	不明	不明
試験を行った年		
種	Rhode Island Red Hens	Rhode Island Red Hens
試験物質の分析の有無	選択して下さい	選択して下さい
試験物質の分析方法		
エンドポイント		
暴露期間		
試験条件	(英文参照)	Hens were fed, from hatching, on diets that had been fumigated with methyl bromide at the concentration recommended for the elimination of salmonellae (800 mg.h/litre and 2000 mg.h/litre).
結果		
毒性値		

注釈	体重、卵重量、卵の数へはあまり影響なかった。 (詳細は英文参照)	Body weight, egg weight, and egg number were not significantly affected, but sexual maturity may have been slightly affected. The same group had previously shown that the taste of meat from broiler chickens was similarly tainted.
信頼性スコア	1. 制限なく信頼性あり	1. 制限なく信頼性あり
信頼性の判断根拠		
出典	Cooper, D.M., Griffiths, N.M., Hobson-Froehock, A., Land, D.G., Rowell, J.G., 1978. Fumigation of poultry food with methyl romide: effects on egg flavour, number, and weight. Br. Poult. Sci., 19: 537-542. Griffiths, N.M., Hobson-Froehock, A., Land, D.G., Levett, J.M., Cooper, D.M., Rowell, J.G. 1978. Fumigation of poultry food with methyl bromide: effects on flavour and acceptability of broiler meat. Br. Poul. Sci., 19:529-535.	Cooper, D.M., Griffiths, N.M., Hobson-Froehock, A., Land, D.G., Rowell, J.G., 1978. Fumigation of poultry food with methyl romide: effects on egg flavour, number, and weight. Br. Poult. Sci., 19: 537-542. Griffiths, N.M., Hobson-Froehock, A., Land, D.G., Levett, J.M., Cooper, D.M., Rowell, J.G. 1978. Fumigation of poultry food with methyl bromide: effects on flavour and acceptability of broiler meat. Br. Poul. Sci., 19:529-535.
引用文献	(21) (39)	(21) (39)
備考		

試験物質	ブロモメタン	bromomethane
同一性	74-83-9 純度: 99.87% 供給時の状態: 重さ10ポンドのシリンダー5本に入った液状ガス(加圧) Lot 6RL4 供給者:Great Lakes Chemical Corporation	74-83-9 Purity: 99.87% Supplied as: Liquefied gas (under pressure) in five 10-pound cylinders, Lot 6RL4, from Great Lakes Chemical Corporation
同一性		
試験の種類	選択して下さい	選択して下さい
GLP	はい	はい
試験を行った年	1994	1994
種	Rhode Island Red Hens Test subjects (species, strain & sex): Northern Bobwhite (Colinus virginianus) from Top Flight Quail Farm, Belvidere, NJ).	Rhode Island Red Hens Test subjects (species, strain & sex): Northern Bobwhite (Colinus virginianus) from Top Flight Quail Farm, Belvidere, NJ).
試験物質の分析の有無	選択して下さい	選択して下さい
試験物質の分析方法		
エンドポイント		
暴露期間	単回投与 強制経口投与 2回/14日 ばく露期間後: 14日まで	Exposure duration: Single oral dose by gavage. Observation intervals: Twice daily for 14 days post-exposure. Post-exposure duration: Up to 14 days.
試験条件	(英文参照)	Young, fasted bobwhite were gavaged with single doses of methyl bromide dissolved in peanut oil and observed thereafter for up to 14 days. During the observation period, subjects were monitored twice daily for signs of toxicity and mortality. Bobwhite were exposed to the doses shown in the table below in groups of 5 per sex. Food consumption was recorded for days 0-3, 4-7, and 8-14. Group Methyl Bromide Methyl Bromide No./Sex/Dose Dose Nominal (mg/kg) Dose Actual (mg/kg) Negative 0 0 5 Control 1 31.3 20.9 5 2 62.5 75 5 3 125 108 5 4 250 170 5 5 500 460 5 6 1,000 960 5 * No standard deviation provided.
結果		
毒性値	Northern Bobwhiteに対して: LD50: 73 mg/kg (95% 信頼限界) 死亡率NOAEL: 31.3 mg/kg 死亡率LOAEL: 62.5 mg/kg. NOAELは設定されなかった。 (詳細は英文参照)	The oral LD50 values for Northern Bobwhite dosed with methyl bromide was found to be 73 mg/kg with 95% confidence limits of 62.5 and 125 mg/kg. The mortality NOAEL is 31.3 mg/kg and the mortality LOAEL is 62.5 mg/kg. No NOAEL for clinical signs was established since they were observed in the lowest dose group.
注釈		
信頼性スコア	1. 制限なく信頼性あり	1. 制限なく信頼性あり
信頼性の判断根拠	データの質は高いと考えられる。報告書には方法と結果が包括的に記載されている。信頼ある試験機関が試験を実施した。	The data quality from this study is considered high. The report included comprehensive documentation for method and results. The conducting laboratory is reputable.
出典	Campbell, S. M., Beavers, J.B., 1994. Methyl Bromide: An Acute Oral Toxicity Study with the Northern Bobwhite. Unpublished report from Wildlife International, Ltd. Project No. 264A-110. Stephan, C.E., 1977. Methods for Calculating an LC50, Pages 65-81 in "Aquatic Toxicology and Hazard Evaluations," American Society for Test and Materials. Publication Number STP 634. Philadelphia, PA.	Campbell, S. M., Beavers, J.B., 1994. Methyl Bromide: An Acute Oral Toxicity Study with the Northern Bobwhite. Unpublished report from Wildlife International, Ltd. Project No. 264A-110. Stephan, C.E., 1977. Methods for Calculating an LC50, Pages 65-81 in "Aquatic Toxicology and Hazard Evaluations," American Society for Test and Materials. Publication Number STP 634. Philadelphia, PA.
引用文献	(18) (123)	(18) (123)
備考		

4-6-1底生生物への毒性

4-7 生物学的影響モニタリング(食物連鎖による蓄積を含む)

4-8 生体内物質変換と動態

4-9 追加情報

項目名	和訳結果	原文
5-1 トキシコキネティクス、代謝、分布		
5-2 急性毒性		
A. 急性経口毒性		
試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等	1) 液化ガス: 99.5% 2) マイクロカプセル型: 6.10%	1) As liquefied gas: 99.5% 2) As microencapsulated form: 6.10%
注釈	供給時の物質状態: 1) 液化ガス (加圧、シリンダー), Lot 00122DZ 供給者:Aldrich Chemical Co. (Milwaukee, WI). 2) マイクロカプセル型臭化メチル (白色粉末), Lot 9234-45-A, 供給者:Pharmaco: LSR, Inc. (East Millstone, NJ). 投与: コーン油で希釈	Supplied as: 1) Liquefied gas (under pressure) in cylinders, Lot 00122DZ, from Aldrich Chemical Co. (Milwaukee, WI), 2) microencapsulated methyl bromide (white powder), Lot 9234-45-A, Pharmaco: LSR, Inc. (East Millstone, NJ). Administered as: Dilution of either form in corn oil vehicle.
方法		
方法／ガイドライン	選択してください その他: 81-1 (EPA FIFRA Pesticide Assessment Guidelines, Subdivision F: Hazard Evaluation: Human and Domestic Animals, Section 81-1) and the TSCA Health Effects Test Guidelines, 40 CFR 798.1175.	選択してください other: 81-1 (EPA FIFRA Pesticide Assessment Guidelines, Subdivision F: Hazard Evaluation: Human and Domestic Animals, Section 81-1) and the TSCA Health Effects Test Guidelines, 40 CFR 798.1175.
GLP適合	はい	はい
試験を行った年	1994	1994
試験系(種／系統)	Rat ラット、アルビノ(Crl:CD BR), 雄と雌	Rat Test subjects (species, strain & sex): Rat, albino (Crl:CD BR), males and females
性別	MF	MF
投与量	0、80、120、160 mg/kg	0、80、120、160 mg/kg
各用量群(性別)の動物数		
溶媒(担体)	コーンオイル	コーンオイル
投与経路	強制経口投与	強制経口投与
観察期間	14日間	14 days
その他の試験条件	(英文参照)	Phase 1 Study Design ("Reconfirmation" Study) Group Methyl Bromide Dose (mg/kg) (Nominal) (Actual) Methyl Bromide Dose (mg/kg) No./Sex/Concentration Negative Control 0 0 5 Low (liquid MeBr) 80 80 5 Mid (liquid MeBr) 120 120 5 High (liquid MeBr) 160 160 5 Phase 2 Main Study Design ("Comparison" Study) Group Methyl Bromide Dose (mg/kg) (Nominal) (Actual) Methyl Bromide Dose (mg/kg) No./Sex/Concentration Negative Control 0 0 5 Low (liquid MeBr) 80 80 5 Mid (liquid MeBr) 120 120 5 High (liquid MeBr) 160 160 5 Low (microencap MeBr) 80 98 5 Mid (microencap MeBr) 120 146 5 High (microencap MeBr) 160 195 5
統計学的処理		
結果		
各用量群での死亡数	(英文参照)	Phase 1 "Reconfirmation" Study (corn oil only) Morbidity/Mortality: For the 50, 100, and 150 mg/kg groups, mortality was 0/10, 1/10, and 9/10, respectively. Nine of 10 deaths occurred on day one post-dosing. Phase 2 "Comparison" Study (microencapsulated MeBr vs "liquid" MeBr in corn oil) (See attached document) Morbidity/Mortality: Mortality was similar between microencapsulated and liquid methyl bromide. 34 of 35 non-scheduled deaths from MeBr occurred by day 2 post-dosing. For the 80, 120, and 160 mg/kg liquid MeBr groups, mortality was 2/10, 6/10, and 10/10, respectively. For the microencapsulated groups, mortality was 1/10, 7/10, and 9/10, for the low, mid, and high dose groups, respectively.

臨床所見	(英文参照)	<p>Phase 1 Clinical signs: At all dose levels, the following signs were noted: hypoactivity, staining of urogenital area, abnormal feces (mucoid, soft, decreased quantity). At 100 and 150 mg/kg, six or more animals exhibited dry yellow staining of mouth area, dry red staining around eyes, nose, mouth, and forelimbs, ataxia, salivation, and/or ocular discharge. At 150 mg/kg, additional findings were hypothermia and brown urogenital staining in 4 animals, as well as abdomen.</p> <p>Phase 2 Clinical signs: Clinical signs were similar between microencapsulated and liquid methyl bromide. In all animals that did not survive (35 total), almost all exhibited hypoactivity and most showed ataxia. Approximately one third of non-survivors had hypothermia and labored breathing. About 1 in five non-survivors suffered prostration and ocular discharge. Two non-survivors were observed to have tremors. In animals that survived to day 14, of the above described symptoms, only hypoactivity and ataxia were observed in some animals. In addition, all survivors exhibited distended stomach by observation days 2 – 6, which usually persisted until the scheduled necropsy, 14 days post-dosing. Most of the survivors also had red staining around the nose that usually occurred only on days 1 or 2 post-dosing. Finally, in the 160 mg/kg liquid MeBr group, some survivors were noted with mucoid feces and yellow urogenital staining.</p>
剖検所見	(英文参照)	<p>Phase 1 Macroscopic Examinations: All non-survivors showed gastric abnormalities including distended stomach (usually yellow or clear fluid filled). Nine of 10 non-survivors had a thickened lining of the non-glandular portion of the stomach; half had dark red patches in the glandular stomach and one rat from the 150 mg/kg group had red fluid in the jejunum. One male non-survivor from the 150 mg/kg group had reddened kidneys, white patches on the liver, and a hemorrhagic thymus. Another was found with a reddened mesenteric lymph node.</p> <p>Phase 2 Macroscopic Examinations: All non-survivors showed gastric abnormalities that, for most subjects, included: reddened mucosal lining, edematous glandular stomach, and stomach distension. Single animals exhibited dark red areas in the non-glandular stomach, reduced mucosal lining, and red streaks in the stomach. Four animals had clear fluid in the thoracic cavity. Other findings were considered post-mortem changes in non-survivors.</p>
その他	<p>「液体」臭化メチルに対して 確認段階: LD50=122 mg/kg (79 mg/kg < 95% CL > 180 mg/kg) 比較段階: LD50=104 mg/kg (83 mg/kg < 95% CL > 130 mg/kg)</p> <p>「マイクロカプセル型」臭化メチルに対して LD50=133 mg/kg (106 mg/kg < 95% CL > 167 mg/kg)</p> <p>以上3つのLD50値は、公表済みのLD50値と一致している。投与後2日に検体はほとんど死亡した。ほとんどの検体において顕著な胃の障害がみられた。</p> <p>投与方法による(臭化メチルをコーン油に直接溶解した場合とマイクロカプセル型臭化メチルをコーン油に入れた場合)試験結果の違いはなかった。 (詳細は英文参照)</p>	<p>For “liquid” methyl bromide (i.e. methyl bromide dissolved in corn oil), the rat oral LD50 (combined sexes) in the confirmation phase was 122 mg/kg (79 mg/kg < 95% CL > 180 mg/kg) and, in the “comparison phase, was 104 mg/kg (83 mg/kg < 95% CL > 130 mg/kg). The rat oral LD50 for microencapsulated form of methyl bromide was 133 mg/kg (106 mg/kg < 95% CL > 167 mg/kg). All three rat oral LD50’s from both phases of study were consistent and corroborated published LD50 values.</p> <p>Most deaths occurred by day 2 post-dosing and marked gastric lesions were present in most subjects. No differences could be attributed to the form of the methyl bromide administered, whether dissolved directly in corn oil or microencapsulated and suspended in corn oil.</p>
結論		
LD50値又はLC50値	LD50 = 104 – 133 mg/kg bw	LD50 = 104 – 133 mg/kg bw
雌雄のLD50値又はLC50値の違い等		
注釈		
信頼性	1 制限なく信頼性あり	1 制限なく信頼性あり
信頼性の判断根拠	データの質は高いと考えられる。報告書には方法と結果が包括的に記載されている。信頼ある試験機関が試験を実施した。	The data quality from this study is considered high. The report included comprehensive documentation for method and results. The conducting laboratory is reputable.
出典	Kiplinger, G.R., 1994. Acute Oral Toxicity Comparison Study of Microencapsulated Methyl Bromide and Liquid Methyl Bromide in Albino Rats. Unpublished report from WIL Research Laboratories, Project No. WIL-49011.	Kiplinger, G.R., 1994. Acute Oral Toxicity Comparison Study of Microencapsulated Methyl Bromide and Liquid Methyl Bromide in Albino Rats. Unpublished report from WIL Research Laboratories, Project No. WIL-49011.
引用文献(元文献)	(70)	(70)
備考		

B. 急性吸入毒性

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
方法／ガイドライン	LC50	LC50

GLP適合	不明	不明
試験を行った年		
試験系(種／系統)	Rat	Rat
性別		
投与量		
各用量群(性別)の動物数		
溶媒(担体)		
投与経路		
観察期間	ばく露期間:8時間	Exposure time: 8 hour(s)
その他の試験条件		
統計学的処理		
結果		
各用量群での死亡数		
臨床所見		
剖検所見		
その他		
結論		
LD50値又はLC50値	LC50=302 ppm	LC50=302 ppm
雌雄のLD50値又はLC50値の違い等		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Honma, T., Miyagawa, M., Sato, M., Hasegawa, H. 1985. Neurotoxicity and metabolism of methyl bromide in rats. Toxicol. Appl. Pharmacol., 81:183-191.	Honma, T., Miyagawa, M., Sato, M., Hasegawa, H. 1985. Neurotoxicity and metabolism of methyl bromide in rats. Toxicol. Appl. Pharmacol., 81:183-191.
引用文献(元文献)	(53)	(53)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等	不明	Grade and purity not stated
注釈		
方法		
方法／ガイドライン	その他	other
GLP適合	不明	不明
試験を行った年		
試験系(種／系統)	Rat other: F344	Rat other: F344
性別		
投与量	0, 90, 175, 250, 325 ppm	0, 90, 175, 250, 325 ppm
各用量群(性別)の動物数		
溶媒(担体)		
投与経路		
観察期間	ばく露時間:6時間/日 5日間	Exposure time: 6 hours/day, 5 consecutive day regimen
その他の試験条件		
統計学的処理		
結果		
各用量群での死亡数		3 three animals from this group died after the fourth exposure.
臨床所見	250 ppm と 325 ppmでは、神経毒性は観察されなかった。	Clinical signs of neurotoxicity were not observed in the 250 ppm and 325 ppm animals after a single or second exposure to methyl bromide.
剖検所見		
その他	250 ppm と 325 ppmでは、ばく露の2日目に下痢がみられた。3日目には、運動失調がみられた。4日目には325ppmの2匹が震顫 及び痙攣を示した。	Diarrhea was noted by the end of the second day of exposure for 250 ppm and 325 ppm animals. By the end of the third exposure, animals from these groups showed ataxia. Two of the 325 ppm rats exhibited tremors and/or convulsions during the fourth exposure.
結論		
LD50値又はLC50値		
雌雄のLD50値又はLC50値の違い等		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Hurt, M.E., Morgan, K.T., Working, P.K., 1987. Histopathology of acute toxic responses in selected tissues from rats exposed by inhalation to methyl bromide. Fundam. Appl. Toxicol., 9:352-365.	Hurt, M.E., Morgan, K.T., Working, P.K., 1987. Histopathology of acute toxic responses in selected tissues from rats exposed by inhalation to methyl bromide. Fundam. Appl. Toxicol., 9:352-365.
引用文献(元文献)	(58)	(58)
備考		

C. 急性経皮毒性

D. 急性毒性(その他の投与経路)

5-3 腐食性／刺激性

A. 皮膚刺激／腐食

B. 眼刺激／腐食

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
方法／ガイドライン	臭化メチルガスをウサギの目への直接ばく露	Grant reports the results of experimental exposure of methyl bromide gas directly to rabbit eyes.
試験のタイプ	in vivo	in vivo
GLP適合	不明	不明
試験を行った年		
試験系(種／系統)	Rabbit	Rabbit
性別	選択してください	選択してください
投与量		
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	目へのガスのばく露	experimental exposure of methyl bromide gas directly to rabbit eyes
観察期間		
その他の試験条件		
統計学的処理		
結果		
腐食	不明	不明
刺激点数: 角膜		
刺激点数: 虹彩		
刺激点数: 結膜		
その他	本ばく露により重度の刺激が生じたが、5日以内に消え始めた。スプラッシュや蒸気へヒトを直接ばく露したところ、重度の眼刺激は生じなかった。ヒトにおける重度の急性ばく露から視覚損傷を含む神経学的予後が生じた。視覚損傷は遅延的に発症する。通常可逆的である。	This exposure resulted in severe irritation that began to clear within five days. In humans, splashes or direct exposure to vapors has not caused severe eye irritation. Severe acute exposure in humans has resulted in neurological sequelae that include visual impairment that is delayed in onset and usually reversible.
結論		
眼刺激性	なし	なし
眼腐食性	不明	不明
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Grant, W.M., Schuman, J.S., 1993. Toxicology of the Eye, Fourth Edition. Charles C. Thomas, Springfield.	Grant, W.M., Schuman, J.S., 1993. Toxicology of the Eye, Fourth Edition. Charles C. Thomas, Springfield.
引用文献(元文献)	(37)	(37)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
方法／ガイドライン		
試験のタイプ	in vivo	in vivo
GLP適合	不明	不明
試験を行った年		
試験系(種／系統)	Rat	Rat
性別	選択してください	選択してください
投与量		
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	目へのガスのばく露	Lacrimation has been observed in rats during inhalation exposures
観察期間		
その他の試験条件		
統計学的処理		
結果		
腐食	不明	不明
刺激点数: 角膜		
刺激点数: 虹彩		
刺激点数: 結膜		
その他	臭化メチルをラットへ吸入ばく露中(濃度>2570 ppm)、ラットに流涙がみられた。濃度823ppmにおいて、マウスの眼への刺激が観察された。	Lacrimation has been observed in rats during inhalation exposures at methyl bromide levels exceeding 2570 ppm. In mice, eye irritation was observed at concentrations of 823ppm.
結論		
眼刺激性	あり	あり
眼腐食性	不明	不明
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Balander, P.A., Polyak, M.G., 1962. Toxicological characteristics of methyl bromide. J. Gig. I. Tokskol. 60:412-419. Irish, D.D., Adams, E.M., Spencer, H.C., Rowe, V.K., 1940. The response attending exposure of laboratory animals to vapors of methyl bromide. J. Ind. Hyg. Toxicol., 22:218-230.	Balander, P.A., Polyak, M.G., 1962. Toxicological characteristics of methyl bromide. J. Gig. I. Tokskol. 60:412-419. Irish, D.D., Adams, E.M., Spencer, H.C., Rowe, V.K., 1940. The response attending exposure of laboratory animals to vapors of methyl bromide. J. Ind. Hyg. Toxicol., 22:218-230.

引用文献(元文献)	(8) (62)	(8) (62)
備考		

5-4 皮膚感作

5-5 反復投与毒性

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等	純度: 100% 有効成分 供給状態: ガス, Lot No. "SLV" 供給者: Great Lakes Chemical	Purity: "100% Active Ingredient" Supplied as: Gas, Lot No. "SLV"; supplier: Great Lakes Chemical
注釈		
方法		
方法/ガイドライン	選択してください その他: 83-1 (FIFRAガイドライン, Subdivision F: Protocol 83-1 "Chronic Toxicity Studies," revised November 1984)	選択してください other: 83-1 (FIFRA Guideline, Subdivision F: Protocol 83-1 "Chronic Toxicity Studies," revised November 1984)
GLP適合	はい	はい
試験を行った年	1996	1996
試験系(種/系統)	Dog ビーグル	Dog Beagle
性別	MF	MF
投与量		
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	混餌投与 臭化メチルで薰蒸消毒した食餌	混餌投与 other: Diet; feed fumigated with methyl bromide gas.
コントロールグループに対する処理	餌のみ (臭化メチル 0 ppm)	feed-only (0 ppm methyl bromide)
投与期間		365
投与頻度	5日/週 (週末は処理なし)	Frequency of treatment: Five days/week (no exposure on weekends).
回復期間	なし	none
試験条件		
統計学的処理		
結果		
体重、体重増加量	臭化メチルへのばく露による体重への影響はなかった。 NOAEL = 0.27 mg/kg-d (雄) NOAEL = 0.26 mg/kg-d (雌) LOAELは設定されなかった。	Body weights: There was no effect from methyl bromide exposure on body weights. Body weight NOAEL = 0.27 mg/kg-d (males) and 0.26 mg/kg-d (females). No LOAEL established.
摂餌量、飲水量	臭化メチルは食餌消費へ影響しなかった。 NOAEL = 0.27 mg/kg-d (雄) NOAEL = 0.26 mg/kg-d (雌) LOAELは設定されなかった。	Food consumption: Methyl bromide did not affect food consumption. NOAEL = 0.27 mg/kg-d (males) and 0.26 mg/kg-d (females). No LOAEL established.
臨床所見(重篤度、所見の発現時期と持続時間)	臨床化学: 3回のサンプリングにおいて対照を比較したとき、統計的に意味があるランダムな差がみられた。 高容量群では、3ヶ月目に全たんぱく質とグロブリンがわずかに増加した。 A/G比は減少した。 高用量群の雌検体において、カリウムの増加がみられた。 6ヶ月目に、中・高用量群の雄検体において、カルシウムの減少がみられた。 試験終了時において、高用量群の雄検体においてA/G比が減少した。 中・高用量群の雄検体において、カルシウムが減少した。 著者は、以下の理由により、臭化メチルへのばく露によるものではないと考えた。 変化量が小さい 通常の変動幅内にある 雄雌両性においてみられない 異なるサンプルで再現性がない 用量に関係していない 臨床化学NOAEL = 0.27 mg/kg-d (雄) 臨床化学NOAEL = 0.26 mg/kg-day (雌) LOAELは設定されなかった。	Clinical chemistries: Random differences were found that reached statistical significance when compared to controls at the 3 collection times. At 3 months, total protein and globulin was slightly increased high dose males and A/G ratio was decreased. High dose females exhibited elevated potassium. At 6 months, mid and high dose males had decreased calcium. At study termination, the A/G ratio was decreased in high dose males and calcium was decreased in mid and high dose males. The authors of the study did not attribute these changes to methyl bromide exposure because they were small, within normal ranges, not seen in both sexes, not repeated consistently at different collection points, and were not generally dose-related. Clinical chemistry NOAEL = 0.27 mg/kg-d (males) and 0.26 mg/kg-day (females). No LOAEL established.
眼科学的所見(発生率、重篤度)	眼科学的影響なし (英文参照)	Ophthalmic Effects: Ophthalmic examinations revealed no effect from methyl bromide exposure. Body weight NOAEL = 0.27 mg/kg-d (males) and 0.26 mg/kg-d (females). No LOAEL established.
血液学的所見(発生率、重篤度)	変化はみられなかった。 血液学 NOAEL = 0.27 mg/kg-d (雄) 血液学 NOAEL = 0.26 mg/kg-d (雌). LOAELは設定されなかった。 (詳細は英文参照)	Hematology: Sporadic changes were noted in some hematology parameters at different collection points. Specifically, high dose males showed a significant decrease in hematocrit values compared to controls at 3 and 6 months. Hemoglobin was decreased in these males at 6 and 12 months. Finally, mid-dose females exhibited elevated hematocrits, hemoglobin, and RBC counts at 12 months. These changes were not considered related to methyl bromide exposure because they varied widely in the baseline assessments prior to treatment, were not consistent among time points or between genders, and did not correlate with other, related parameters (e.g. reticulocyte counts did not change when RBC's were elevated). Hematology NOAEL = 0.27 mg/kg-d (males) and 0.26 mg/kg-d (females). No LOAEL established.
血液生化学的所見(発生率、重篤度)		

尿検査所見(発生率、重篤度)	変化はみられなかった。 尿検査NOAEL = 0.27 mg/kg-d (雄) 尿検査NOAEL = 0.26 mg/kg-d (雌) LOAELは設定されなかった。 (詳細は英文参照)	Urinalyses: No changes were found that could be attributed to methyl bromide exposure. Urinalysis NOAEL = 0.27 mg/kg-d (males) and 0.26 (females). No LOAEL established.
死亡数(率)、死亡時間	予定していなかった死亡は生じなかった。 死亡率 NOAEL = 0.27 mg/kg-d (雄) 死亡率 NOAEL = 0.26 mg/kg-d (雌) LOAELは設定されなかった。 (詳細は英文参照)	Morbidity/Mortality: No unscheduled deaths occurred during the course of the study. Mortality NOAEL = 0.27 mg/kg-d (males) and 0.26 mg/kg-d (females). No LOAEL established.
剖検所見(発生率、重篤度)		
臓器重量	変化なし 臓器重量 NOAEL = 0.27 mg/kg-d (雄) 臓器重量 NOAEL = 0.26 mg/kg-d (雌) LOAELは設定されなかった。 (詳細は英文参照)	Organ weights: Methyl bromide exposure produced no effect upon absolute or relative organ weights. A statistically significant difference in absolute kidney weights was found in mid and high dose females. When compared on a basis relative either to total body weight or to brain weight, however, no difference was detected. Because of this, and because a dose response was not exhibited, kidney weights were not considered to be affected by methyl bromide exposure. Organ weight NOAEL = 0.27 mg/kg-d (males) and 0.26 mg/kg-d (females). No LOAEL established.
病理組織学的所見(発生率、重篤度)	変化なし 理組織学 NOAEL = 0.27 mg/kg-d (雄) 理組織学 NOAEL = 0.26 mg/kg-d (雌) LOAELは設定されなかった。 (詳細は英文参照)	Gross pathology: Examination at necropsy revealed no effect from methyl bromide exposure. NOAEL = 0.27 mg/kg-d (males) and 0.26 mg/kg-d (females). No LOAEL established. Histopathology: Although incidental lesions were found, none were considered related to methyl bromide exposure. NOAEL = 0.27 mg/kg-d (males) and 0.26 (females). No LOAEL
実際に摂取された量		
用量反応性		
NOAEL/LOAELの推定根拠		
注釈		
結論		
NOAEL (NOEL)	NOEL: 5 ppm	the NOEL for methyl bromide when administered via fumigated feed to beagle dogs was 5 ppm
LOAEL (LOEL)		
雌雄のNOAEL(LOAEL)の違い等	雄検体> 0.27 mg/kg/day 雌検体> 0.26 mg/kg/day	> 0.27 mg/kg/day for males and > 0.26 mg/kg/day for females).
注釈		
信頼性	1 制限なく信頼性あり	1 制限なく信頼性あり
信頼性の判断根拠	データの質は高いと考えられる。報告書には方法と結果が包括的に記載されている。信頼ある試験機関が試験を実施した。	The data quality from this study is considered high. The report included comprehensive documentation for method and results. The conducting laboratory is reputable.
出典	Newton, P.E., 1995. A chronic (12-month) toxicity study of methyl bromide fumigated feed in the dog. Unpublished report from Pharmac LSR, Project Number 93-6068. Wilson, N.H., Newton, P.E., Rahi, M., Bolte, H.F., Suber, R.L., 1998. Methyl bromide: 1-year dietary study in dogs. Food Chem. Toxicol. 36(7):575-584.	Newton, P.E., 1995. A chronic (12-month) toxicity study of methyl bromide fumigated feed in the dog. Unpublished report from Pharmac LSR, Project Number 93-6068. Wilson, N.H., Newton, P.E., Rahi, M., Bolte, H.F., Suber, R.L., 1998. Methyl bromide: 1-year dietary study in dogs. Food Chem. Toxicol. 36(7):575-584.
引用文献(元文献)	(94) (141)	(94) (141)
備考		

5-6 *in vitro* 遺伝毒性

A. 遺伝子突然変異

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等	純度: 非特定 供給状態: 液化ガス(加圧シリンダー2本中) Batch No. 77371 供給者: BDH Limited, (Dorset, England)	Purity: Not specified Supplied as: Liquefied gas (under pressure) in two cylinders, Batch No. 77371, from BDH Limited, (Dorset, England).
注釈		
方法		
方法/ガイドライン	選択してください 英文参照	選択してください Human embryonic intestinal (diploid fibroblast) cells (Flow 11,000), passage 12-35 obtained from Flow Laboratories, Irvine Scotland.
GLP適合	不明	不明
試験を行った年	1981	1981
細胞株又は検定菌	選択してください ヒト胎児の腸細胞	選択してください human embryonic intestinal cells
代謝活性化(S9)の有無	有・無	with and without
試験条件	(英文参照)	Solvent: DMSO (dimethylsulfoxide). Number of replicates: Three. Number of metaphases analyzed: 50. Exposure duration: Three hours. Exposure regimen: Not specified. # Cells/exposure level: 5,000/ml x 2 ml = 10,000 cells. Method of detection: Counting of grains on a photographic plate from 50 randomly selected cells, i.e., autoradiography of tritiated thymidine incorporated into nuclear DNA. Statistical methods: Not described. Route of administration: Cells exposed to gaseous methyl bromide. Concentration: 5, 10, 20, 30, 40, 50, 60, 70 percent in air

結果																																																																								
細胞毒性																																																																								
代謝活性ありの場合	代謝活性あり、又はなしの場合において、細胞毒性は報告されなかった。(大気中濃度70%まで)	Cytotoxicity was not reported at methyl bromide concentrations up to 70% in air, with or without a metabolic activation system.																																																																						
代謝活性なしの場合																																																																								
変異原性																																																																								
代謝活性ありの場合																																																																								
代謝活性なしの場合																																																																								
注釈	(英文参照)	<table><tr><td>Group</td><td colspan="2">(Nominal)</td><td colspan="2">Mean No. Grains/Nucleus ± S.D.</td></tr><tr><td>Concentration (mg/L)</td><td>With S-9</td><td>Without S-9</td><td>With S-9</td><td>Without S-9</td></tr><tr><td>DMSO Vehicle (Negative)</td><td>1</td><td>1</td><td>5.2 ± 5.0</td><td>3.3 ± 2.7</td></tr><tr><td>Control</td><td>1</td><td>1</td><td>5.2 ± 5.0</td><td>3.3 ± 2.7</td></tr><tr><td>Vinyl Chloride</td><td>2.5</td><td>25</td><td>95.8 ± 42.9</td><td>4.4 ± 2.5</td></tr><tr><td>Positive Control</td><td></td><td></td><td></td><td></td></tr><tr><td>Methyl Bromide</td><td>5</td><td>5</td><td>4.4 ± 4.1</td><td>1.7 ± 1.6</td></tr><tr><td></td><td>10</td><td>10</td><td>7.0 ± 5.4</td><td>3.3 ± 4.5</td></tr><tr><td></td><td>20</td><td>20</td><td>4.1 ± 3.5</td><td>4.7 ± 3.6</td></tr><tr><td></td><td>30</td><td>30</td><td>5.9 ± 4.0</td><td>4.4 ± 3.9</td></tr><tr><td></td><td>40</td><td>40</td><td>7.3 ± 6.3</td><td>4.4 ± 3.2</td></tr><tr><td></td><td>50</td><td>50</td><td>3.8 ± 4.4</td><td>6.0 ± 4.2</td></tr><tr><td></td><td>60</td><td>60</td><td>12.1 ± 11.1</td><td>6.7 ± 5.2</td></tr><tr><td></td><td>70</td><td>70</td><td>9.8 ± 6.8</td><td>6.6 ± 5.7</td></tr></table>	Group	(Nominal)		Mean No. Grains/Nucleus ± S.D.		Concentration (mg/L)	With S-9	Without S-9	With S-9	Without S-9	DMSO Vehicle (Negative)	1	1	5.2 ± 5.0	3.3 ± 2.7	Control	1	1	5.2 ± 5.0	3.3 ± 2.7	Vinyl Chloride	2.5	25	95.8 ± 42.9	4.4 ± 2.5	Positive Control					Methyl Bromide	5	5	4.4 ± 4.1	1.7 ± 1.6		10	10	7.0 ± 5.4	3.3 ± 4.5		20	20	4.1 ± 3.5	4.7 ± 3.6		30	30	5.9 ± 4.0	4.4 ± 3.9		40	40	7.3 ± 6.3	4.4 ± 3.2		50	50	3.8 ± 4.4	6.0 ± 4.2		60	60	12.1 ± 11.1	6.7 ± 5.2		70	70	9.8 ± 6.8	6.6 ± 5.7
Group	(Nominal)		Mean No. Grains/Nucleus ± S.D.																																																																					
Concentration (mg/L)	With S-9	Without S-9	With S-9	Without S-9																																																																				
DMSO Vehicle (Negative)	1	1	5.2 ± 5.0	3.3 ± 2.7																																																																				
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	70	70	9.8 ± 6.8	6.6 ± 5.7																																																																				
結論																																																																								
遺伝子突然変異	陰性	陰性																																																																						
注釈																																																																								
信頼性	2 制限付きで信頼性あり(非GLP等)	2 制限付きで信頼性あり(非GLP等)																																																																						
信頼性の判断根拠	本試験の手順の詳細は説明されていないが、本試験のデータの質は十分である。	While the procedures for this assay are poorly described, the data quality from this study is considered adequate.																																																																						
出典	None specified (none “called out”) in the narrative portion of report.	None specified (none “called out”) in the narrative portion of report.																																																																						
引用文献(元文献)	(96)	(96)																																																																						
備考																																																																								

B. 染色体異常

5-7 *in vivo* 遺伝毒性

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等	純度: 非特定 供給状態: 液化ガス(加圧シリンダー2本中) Batch No. 77371 供給者: BDH Limited, (Dorset, England)	Purity: Not specified Supplied as: Liquified gas (under pressure) in two cylinders, Batch No. 77371, from BDH Limited, (Dorset, England).
注釈		
方法		
方法/ガイドライン	選択してください	選択してください
試験のタイプ	骨髄細胞	bone marrow cytogenetics
GLP適合	不明	不明
試験を行った年	1981	1981
試験系(種/系統)	Rat (CD Sprague-Dawley derived)	Rat (CD Sprague-Dawley derived)
性別	MF	MF
投与量	0, 20, 70 ppm (0, 78, 272 mg/m3)	0, 20, 70 ppm (0, 78, 272 mg/m3)
投与経路	選択してください	選択してください
試験期間	ばく露期間: 7時間/日 1日目～5日目まで	Exposure period: 7 hours/day for 1-5 days
試験条件	(英文参照)	# Exposure levels (# of Groups): Four (including air-only and positive control groups). Control group(s): Air-only (0 ppm). Positive control group(s): Ethyl methanesulfonate (orally Exposure regimen: Phase 1: single 7-hour exposure. Phase 2: five consecutive daily 7-hour exposures. Post-exposure duration: None. # Animals/sex/dose/sacrifice interval:10/sex/concentration/sacrifice (see table above). Terminal sacrifice: Phase 1: 6 hr, 24 hr, and 48 hr post-exposure Phase 2: 6 hr post-exposure. No mention is made in the report of colchicine injection to arrest cells in S-phase.
統計学的処理		
結果		
性別及び投与量別の結果		
遺伝毒性効果	陰性 影響なし (詳細は英文参照)	陰性 Inhalation exposure to methyl bromide concentrations of 20 or 70 ppm did not increase chromosomal aberrations, whether exposed for a single 7-hour period or after five consecutive daily 7-hour periods.
NOAEL (NOEL)		
LOAEL (LOEL)		
統計的結果		
注釈		
結論		
<i>in vivo</i> 遺伝毒性	陰性	陰性
注釈		
信頼性	2 制限付きで信頼性あり(非GLP等)	2 制限付きで信頼性あり(非GLP等)

信頼性の判断根拠	本試験の手順の詳細は説明されていないが、本試験のデータの質は満足できる。	While the procedures for this assay are poorly described and disorganized, the data quality from this study is considered adequate.
出典	McGregor, D.B., 1981. Tier II mutagenic screening of 13 NIOSH priority compounds, Report No. 32 – Individual compound report: methyl bromide. Cincinnati, Ohio, National Institute of Occupational Safety and Health, 190 pp (PB83-130211).	McGregor, D.B., 1981. Tier II mutagenic screening of 13 NIOSH priority compounds, Report No. 32 – Individual compound report: methyl bromide. Cincinnati, Ohio, National Institute of Occupational Safety and Health, 190 pp (PB83-130211).
引用文献(元文献)	(79)	(79)
備考		

試験物質名	ブロモメタン	bromomethane																									
CAS番号	74-83-9	74-83-9																									
純度等	純度: 非特定 供給状態: 液化ガス(加圧シリンダー2本中) Batch No. 77371 供給者: BDH Limited, (Dorset, England)	Purity: Not specified Supplied as: Liquefied gas (under pressure) in two cylinders, Batch No. 77371, from BDH Limited, (Dorset, England).																									
注釈																											
方法																											
方法／ガイドライン	選択してください その他: 非特定(手順が公布される以前に本試験は実施された。)方法に関する参考資料はなし。	選択してください other: None specified (this study predates published protocols). No references for methodology were given.																									
試験のタイプ	優性致死	Dominant lethal assay																									
GLP適合	不明	不明																									
試験を行った年	1981	1981																									
試験系(種／系統)	rat	rat																									
性別	M	M																									
投与量	0, 20, 70 ppm (0, 78, 272 mg/m3)	0, 20, 70 ppm (0, 78, 272 mg/m3)																									
投与経路	選択してください 吸入	選択してください inhalation																									
試験期間	ばく露期間: 7時間・日 (5日間)	Exposure period: 7 hours/day for 5 days																									
試験条件	(英文参照)	<table><tr><th>Group</th><th>Methyl Bromide Concentration (ppm) Target (Nominal)</th><th>Methyl Bromide Concentration Range (ppm) actual (Measured)</th><th>No./males/ conc.</th><th>No./females. conc. week (for ten weeks)</th></tr><tr><td>Neg. (Air-only) Control</td><td>0</td><td>0</td><td>10</td><td>20</td></tr><tr><td>Low</td><td>20</td><td>18.7-21.4</td><td>10</td><td>20</td></tr><tr><td>Mid</td><td>70</td><td>69.4-73.4</td><td>10</td><td>20</td></tr><tr><td>Positive Control*</td><td>100</td><td>100</td><td>10</td><td>20</td></tr></table> <p>* Ethyl methanesulfonate (EMS); 5 consecutive daily gavage. Males only were exposed for 7 hours per day on five consecutive days. Immediately after exposure, males were paired with two virgin females for 1 week. Females were removed at the end of one week and two new virgin females were introduced. This process was repeated for 10 weeks to cover the period of spermatogenesis. Mated females were sacrificed 14 days after presumed fertilization (days 2 or 3 after introduction) and ovaries and uteri were removed.</p>	Group	Methyl Bromide Concentration (ppm) Target (Nominal)	Methyl Bromide Concentration Range (ppm) actual (Measured)	No./males/ conc.	No./females. conc. week (for ten weeks)	Neg. (Air-only) Control	0	0	10	20	Low	20	18.7-21.4	10	20	Mid	70	69.4-73.4	10	20	Positive Control*	100	100	10	20
Group	Methyl Bromide Concentration (ppm) Target (Nominal)	Methyl Bromide Concentration Range (ppm) actual (Measured)	No./males/ conc.	No./females. conc. week (for ten weeks)																							
Neg. (Air-only) Control	0	0	10	20																							
Low	20	18.7-21.4	10	20																							
Mid	70	69.4-73.4	10	20																							
Positive Control*	100	100	10	20																							
統計学的処理																											
結果																											
性別及び投与量別の結果																											
遺伝毒性効果	陰性	陰性																									
NOAEL (NOEL)																											
LOAEL (LOEL)																											
統計的結果																											
注釈	影響なし(英文参照)	Methyl bromide did not have a dominant lethal effect on rats exposed to methyl bromide concentrations of 0, 20, or 70 ppm for 7 hours per day, for 5 consecutive days.																									
結論																											
<i>in vivo</i> 遺伝毒性	陰性	陰性																									
注釈																											
信頼性	2 制限付きで信頼性あり(非GLP等)	2 制限付きで信頼性あり(非GLP等)																									
信頼性の判断根拠	本試験の手順の詳細は説明されていないが、本試験のデータの質は満足できる。	While the procedures for this assay are poorly described and disorganized, the data quality from this study is considered adequate.																									
出典	McGregor, D.B., 1981. Tier II mutagenic screening of 13 NIOSH priority compounds, Report No. 32 - Individual compound report: methyl bromide. Cincinnati, Ohio, National Institute of Occupational Safety and Health, 190 pp (PB83-130211).	McGregor, D.B., 1981. Tier II mutagenic screening of 13 NIOSH priority compounds, Report No. 32 - Individual compound report: methyl bromide. Cincinnati, Ohio, National Institute of Occupational Safety and Health, 190 pp (PB83-130211).																									
引用文献(元文献)	(79)	(79)																									
備考																											

試験物質名	ブロモメタン	bromomethane																																								
CAS番号	74-83-9	74-83-9																																								
純度等	純度: 非特定 供給状態: 液化ガス(加圧シリンダー2本中) Batch No. 77371 供給者: BDH Limited, (Dorset, England)	Purity: Not specified Supplied as: Liquefied gas (under pressure) in two cylinders, Batch No. 77371, from BDH Limited, (Dorset, England).																																								
注釈																																										
方法																																										
方法／ガイドライン	選択してください その他: 非特定(手順が公布される以前に本試験は実施された。) 方法に関する参考資料はなし。	選択してください other: None specified (this study predates published protocols). No references for methodology were given.																																								
試験のタイプ	ショウジョウバエ伴性劣性致死試験	Sex-Linked Recessive Lethal Test in Drosophila																																								
GLP適合	不明	不明																																								
試験を行った年	1981	1981																																								
試験系(種／系統)	(英文参照)	Species: Drosophila melanogaster Strain: other: oregon K wild type																																								
性別	MF	MF																																								
投与量	0, 20, 70 ppm (0, 78, 272 mg/m3)	0, 20, 70 ppm (0, 78, 272 mg/m3)																																								
投与経路	選択してください 吸入	選択してください inhalation																																								
試験期間	ばく露期間: 5時間	Exposure period: 5 hours																																								
試験条件	(英文参照)	<table><tr><td>Group</td><td>Methyl Bromide Concentration (ppm) Target (Nominal)</td><td>Methyl Bromide Concentration (ppm) actual (Measured)</td><td>No/males/ conc.</td><td>No/females. conc.</td></tr><tr><td>Low</td><td>20</td><td>18.7-21.4</td><td>2</td><td>4</td></tr><tr><td>Mid</td><td>70</td><td>69.4-73.4</td><td>2</td><td>4</td></tr><tr><td>Positive Control*</td><td>EMS oral*</td><td>EMS oral*</td><td>2</td><td>4</td></tr><tr><td>Group</td><td>No/broods/ conc.</td><td>No/generations conc.</td><td></td><td></td></tr><tr><td>Low</td><td>3</td><td>3</td><td></td><td></td></tr><tr><td>Mid</td><td>3</td><td>3</td><td></td><td></td></tr><tr><td>Positive Control*</td><td>3</td><td>3</td><td></td><td></td></tr></table> <p>* Ethyl methanesulfonate (EMS); 0.4% in sucrose food for 5hours. In a preliminary toxicity test, 100 flies were exposed to the above concentrations for 1, 3, and 5 hours. Toxicity was measured by the hatchability index. Results indicated that a 5-hour exposure was appropriate (i.e., no toxicity occurred after 5 hours). In the recessive lethal study, only Wild-type males were exposed to methyl bromide at concentrations of 0, 20, or 70 ppm for 5 hours. These males were then mated with two separate unexposed virgin females carrying a heterozygous trait that produce two male phenotypes (wild and inbred types) on days 1, 3 and 8 following exposure (covering the period of spermatogenesis). These matings produced three F1 broods (each the combined offspring of the two females). Males from the F1 generation were mated with sibling females and scored for wild type males (the absence of which would indicate a recessive lethal effect).</p>	Group	Methyl Bromide Concentration (ppm) Target (Nominal)	Methyl Bromide Concentration (ppm) actual (Measured)	No/males/ conc.	No/females. conc.	Low	20	18.7-21.4	2	4	Mid	70	69.4-73.4	2	4	Positive Control*	EMS oral*	EMS oral*	2	4	Group	No/broods/ conc.	No/generations conc.			Low	3	3			Mid	3	3			Positive Control*	3	3		
Group	Methyl Bromide Concentration (ppm) Target (Nominal)	Methyl Bromide Concentration (ppm) actual (Measured)	No/males/ conc.	No/females. conc.																																						
Low	20	18.7-21.4	2	4																																						
Mid	70	69.4-73.4	2	4																																						
Positive Control*	EMS oral*	EMS oral*	2	4																																						
Group	No/broods/ conc.	No/generations conc.																																								
Low	3	3																																								
Mid	3	3																																								
Positive Control*	3	3																																								
統計学的処理																																										
結果																																										
性別及び投与量別の結果																																										
遺伝毒性効果	陰性	陰性																																								
NOAEL (NOEL)																																										
LOAEL (LOEL)																																										
統計的結果																																										
注釈	ショウジョウバエの膨腹部黒色化(メラノガスター)発生率には影響しなかった。(英文参照)	Methyl bromide did not cause an increase in the rate of sex-linked recessive lethality in Drosophila melanogaster exposed to methyl bromide concentrations of 0, 20, or 70 ppm for a single 5-hour exposure.																																								
結論																																										
in vivo遺伝毒性	陰性	陰性																																								
注釈																																										
信頼性	2 制限付きで信頼性あり(非GLP等)	2 制限付きで信頼性あり(非GLP等)																																								
信頼性の判断根拠	本試験の手順の詳細は説明されていないが、本試験のデータの質は満足できる。	While the procedures for this assay are poorly described and disorganized, the data quality from this study is considered adequate.																																								
出典	Spencer, W.P., Stern, C., 1948, Genetics 33:43. Wurgler, F.E., Sobels, F.H., Vogel, E., 1977. In "Handbook of Mutagenicity Test Procedures." (B.J. Kilbey, M. Legator, W. Nichols, C. Ramel, eds.) Elsevier, Amsterdam.	Spencer, W.P., Stern, C., 1948, Genetics 33:43. Wurgler, F.E., Sobels, F.H., Vogel, E., 1977. In "Handbook of Mutagenicity Test Procedures." (B.J. Kilbey, M. Legator, W. Nichols, C. Ramel, eds.) Elsevier, Amsterdam.																																								
引用文献(元文献)	(119) (143)	(119) (143)																																								
備考																																										

5-8 発がん性

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等	純度: > 98.8% (< 50 ppm water, < 10 ppm HBr) 供給状態: 臭化メチルの圧縮液化ガス (加圧シリンダー中、45 kg/cylinder) 供給者: Air Products	Purity: > 98.8% (< 50 ppm water; < 10 ppm HBr) Supplied as: Liquefied, compressed methyl bromide gas in pressurized cylinders (45 kg/cylinder, supplied by Air Products).
注釈		
方法		

方法／ガイドライン	その他: OECDガイドライン 451 (1981)	other: OECD 451 (1981)
試験のタイプ	選択してください	選択してください
GLP適合	はい	はい
試験を行った年	1987	1987
試験系(種／系統)	Rat	Rat
	Wistar	Wistar
性別	MF	MF
投与量	0, 3, 30, 90 ppm	0, 3, 30 or 90 ppm
各用量群(性別)の動物数	(英文参照)	Animals/sex/concentration: 90/sex/conc. total; 50/sex/conc. for lifetime exposure duration (remainder split 10/sex among three sacrifice and one behavioral test intervals).
溶媒(担体)	溶媒無し	溶媒無し
投与経路	ガス吸入	ガス吸入
処理頻度	6時間/日、5日間/週 (週末は処理なし)	6 hours/day, 5 days/week (no exposure on weekends)
コントロールグループと処理	空気のみ (0 ppm)	Air-only (0 ppm)
試験条件		
統計学的処理		
結果		
体重、体重増加量	体重減少 LOAEL = 90 ppm (雄雌) (英文参照)	Body weights: In the 90 ppm group, male and female body weights were slightly less than controls after four weeks of exposure. Differences were not always statistically significant in males but were always so in females. Females exposed to 3 and 30 ppm showed weight loss from exposure days 309 to 337. Females from these two groups resumed weight gain thereafter. Males, which were housed in the same chambers at 3 and 30 ppm, did not show weight loss or decreased weight gain during the same period. Nor did females at 90 ppm exhibit these effects over this period. No reason was apparent that explained the weight loss in the 3 and 30 ppm females. Much earlier in the study (exposure week 5), a transient lower body weight (not frank weight loss) was found in the 30 ppm males that did not occur at the next weighing. Because of the inconsistencies, no treatment related effect was ascribed to the body weight effects in subjects exposed to 3 or 30 ppm. However, methyl bromide exposure did appear related to the effects found in the 90 ppm group. Body weight NOAEL = 30 ppm (males and females); Body weight LOAEL = 90 ppm (males and females).
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)	臨床的には対照群と試験群において違いがない。 臨床所見NOAEL = 90 ppm (雄雌) LOAELは設定されなかった。 (詳細は英文参照)	Clinical signs: No differences were noted between control and methyl bromide-treated animals regarding behavioral or clinical signs. Clinical signs NOAEL = 90 ppm (males and females). No LOAEL established. Clinical chemistries: BUN was decreased in a dose related manner in 30 and 90 ppm males at 53 weeks. Although not seen with females, this finding may be related to methyl bromide exposure. Total protein was higher (63.4 g/l) in 90-ppm males at week 53 than controls (60.9 g/l). Because the control value was considered unusually low, the study authors did not consider increased protein to be treatment-related. Females exposed to 30 ppm methyl bromide exhibited an increase in alkaline phosphatase that did not re-occur at week 53. Because of the lack of re-occurrence and lack of dose-response, the alkaline phosphatase findings were not considered treatment related. Alanine amino transferase and aspartate amino transferase were both decreased in 90 ppm females at 53 weeks. Because the control was unusually high and this effect did not occur at 13 weeks, the authors did not attribute the effect to methyl bromide exposure. Decreased BUN NOAEL = 3 ppm (males), 90 ppm (females). Decreased BUN LOAEL = 30 ppm (males), none for females.
眼科学的所見(発生率、重篤度)		
血液学的所見(発生率、重篤度)	統計的に意味をもつランダムな差異が発生。 (詳細は英文参照)	Hematology: Random differences were found at week 13 and week 52 that reached statistical significance in some groups. Specifically, mean packed cell volume was slightly decreased in 90 ppm females at 13 weeks (but not 52 weeks and erythrocyte count was normal). Also, neutrophil counts were increased in the 3 ppm females at week 13, erythrocyte counts were decreased in 30 ppm males at 13 weeks. At week 52, white cell counts were higher in 3 and 90 ppm males when compared statistically to an unusually low control value but were within the normal range.
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)	変化はみられなかった。 尿検査 NOAEL = 90 ppm (雄雌) LOAELは設定されなかった。	Urinalyses: No changes were found that could be attributed to methyl bromide exposure. Urinalysis NOAEL = 90 ppm (males and females). No LOAEL established.
死亡数(率)、死亡時間	増加した。 死亡率 NOAEL = 30 ppm (雄雌) 死亡率 LOAEL = 90 ppm (雄雌) (詳細は英文参照)	Morbidity/Mortality: Increased in 90 ppm group toward end of second year in both males and females. Increased mortality was associated with increased incidence of heart thrombi, which the study authors speculated might be causative. Mortality NOAEL = 30 ppm (males and females); Mortality LOAEL = 90 ppm (males and females).
剖検所見(発生率、重篤度)		

臓器重量	<p>絶対臓器重量NOAEL = 3 ppm (雌) 絶対臓器重量NOAEL = 30 ppm (雄)</p> <p>相対臓器重量NOAEL = 3 ppm (雄) 相対臓器重量NOAEL = 30 ppm (雌)</p> <p>(詳細は英文参照)</p>	<p>Organ weights: At 53 weeks, average absolute kidney weights were significantly lower in 90 ppm males and 30 and 90 ppm females. Expressed relative to total body weight, kidney weights were significantly lower for 30 and 90 ppm males and these decreases exhibited a dose-response relationship. Brain weights were decreased compared to controls on an absolute but not relative basis in 90 ppm females at 53 and 104 weeks. While not statistically significant for males the same pattern held for absolute brain weights (also no difference relative to body weight). Relative but not absolute thyroid weights were decreased in females exposed to 30 ppm (not considered treatment related). Absolute organ weight NOAEL = 3 ppm (females) and 30 ppm (males). Relative organ weight NOAEL = 3 ppm (males) and 30 ppm (females).</p>
病理組織学的所見(発生率、重篤度)	<p>90 ppm用量群雄雌検体において増加。 NOAEL = 30 ppm (雄雌) LOAEL = 90 ppm (雄雌)</p> <p>(詳細は英文参照)</p>	<p>Gross pathology: Increased incidence of hemothorax in males and females from the 90 ppm group. NOAEL = 30 ppm (males and females); LOAEL = 90 ppm (males and females). Histopathology: Regarding non-neoplastic lesions, a concentration-related increase in irritation of the nasal epithelia was found in methyl bromide exposed rats of both sexes at all exposure levels and all four sacrifice times. These lesions occurred in the dorso-medial part of the nasal cavity and were characterized by basal cell hyperplasia and degeneration of the overlying epithelium. While concentration-related, these lesions did not increase appreciably with exposure time. An increased incidence also was seen of thrombi in the heart at various exposure times after 53 weeks and was most pronounced in the 90 ppm group for both males and females. Controls did not exhibit this heart lesion. Hyperkeratosis of the esophagus and stomach was found in both sexes exposed to 90 ppm methyl bromide but was statistically higher only in males. No higher incidence of neoplastic lesions occurred that could be attributed to methyl bromide exposure.</p>
実際に摂取された量		
腫瘍発生までの時間		
用量反応性		
統計的結果		
注釈	<p>主要な所見: 1) 用量に応じて、鼻上皮の変質と低～中度の過形成 2) 心臓組織への損傷 (90 ppmで顕著), 3) 雄検体において"esophageal hyperkeratosis (29ヶ月目、90ppm) 4) 統計的に重要でない前胃部損傷</p>	<p>The major findings were: 1) degeneration and slight to moderate hyperplasia in the nasal olfactory epithelium that increased with dose, 2) damage to heart tissue (significant at the 90 ppm level), 3) esophageal hyperkeratosis at 90 ppm in males only at 29 months, and 4) forestomach lesions that were not statistically significant.</p> <p>No treatment-related gross or microscopic changes were observed in the brains or lungs of exposed animals. Irritation of the nasal olfactory epithelium was characterized by degeneration and hyperplasia. This lesion increased in severity with concentration, ranging from very slight to moderate. Irritation also increased somewhat with time, even in controls, suggesting an age-related effect. A statistically significant increase was found between controls and the low-exposure group (3 ppm) at the end of the 29-month exposure period but not before (as with the higher exposure groups). The frequency of this lesion also increased with age in the controls from 12 through 24 and 29 months. All but one of the lesions in the 3-ppm group was described as slight or very slight. One moderate lesion of the nasal mucosa also was observed in a control animal at the 24-month sacrifice interval. The NOAEL for this lesion was 90 ppm after 12 months of exposure, 3 ppm after 24 months, and < 3 ppm after 29 months.</p>
結論		
実験動物における発がん性の有無	なし	なし
注釈		
信頼性	1 制限なく信頼性あり	1 制限なく信頼性あり
信頼性の判断根拠	データの質は高いと考えられる。報告書には方法と結果が包括的に記載されている。信頼ある試験機関が試験を実施した。	The data quality from this study is considered high. The report included comprehensive documentation for method and results. The conducting laboratory is reputable. This study reaches Klimisch level 1.
出典	Reuzel, P.G.J., Dreef-Van der Meulen, H.C., Hollanders, V.M.H., Kuper, C.F., Feron, V.J. Van der Heijden, C.A. 1991. Chronic inhalation toxicity and carcinogenicity study of methyl bromide in Wistar rats. Food Chem. Toxicol., 29: 31-39 T.N.O., 1987. Chronic (29 month) inhalation toxicity and carcinogenic study of methyl bromide in rats, Report 86.469/221044.	Reuzel, P.G.J., Dreef-Van der Meulen, H.C., Hollanders, V.M.H., Kuper, C.F., Feron, V.J. Van der Heijden, C.A. 1991. Chronic inhalation toxicity and carcinogenicity study of methyl bromide in Wistar rats. Food Chem. Toxicol., 29: 31-39 T.N.O., 1987. Chronic (29 month) inhalation toxicity and carcinogenic study of methyl bromide in rats, Report 86.469/221044.
引用文献(元文献)	(106) (125)	(106) (125)
備考		
試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈	純度: 0.48%と3.44%の臭化メチル 供給状態: マイクロカプセル型の圧縮液化ガス(加圧シリンダー中)	Purity: Two batches of 0.48% and 3.44% microencapsulated methyl bromide Supplied as: Microencapsulated methyl bromide

方法		
方法／ガイドライン	その他: 83-5 (FIFRA Guideline, Subdivision F: Protocol 83-5)	other: 83-5 (FIFRA Guideline, Subdivision F: Protocol 83-5)
試験のタイプ	選択してください	選択してください
GLP適合	はい	はい
試験を行った年	1997	1997
試験系(種／系統)	Rat	Rat
	Ctrl: CD (SD)BR	Ctrl: CD (SD)BR
性別	MF	male/female
投与量	0, 0.5, 2.5, 50, 250 ppm	0, 0.5, 2.5, 50, 250 ppm
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	混餌投与	混餌投与
	マイクロカプセル型プロモメチル入りの食餌	Diet containing microencapsulated methyl bromide
処理頻度	7日間/週	Frequency of treatment: 7 days/week
コントロールグループと処理	マイクロカプセルのみ(0 ppm) 餌の中にマイクロカプセルを入れた。	feed only (0 ppm methyl bromide) Microcapsules in feed:
試験条件		
統計学的処理		
結果		
体重、体重増加量	<p>体重が減少した。 体重NOAEL = 50 ppm、2.20 mg/kg-d (雄) 体重NOAEL = 2.92 mg/kg-d (雌) LOAEL = 250 ppm. (詳細は英文参照)</p>	<p>Body weights: Body weights and body weight gains of rats from the 250 ppm group were significantly decreased in both sexes compared to either control group. These decreases tended to disappear during the second year of study. Body weight NOAEL = 50 ppm or 2.20 mg/kg-d (males) and 2.92 mg/kg-d (females). LOAEL = 250 ppm.</p>
摂餌量、飲水量	<p>食餌消費が減少した。 食餌消費NOAEL = 50 ppm、2.20 mg/kg-d (雄) 食餌消費NOAEL = 2.92 mg/kg-d (雌) LOAEL = 250 ppm. (詳細は英文参照)</p>	<p>Food consumption: Food consumption of rats from the 250 ppm group were significantly decreased in both sexes compared to either control group. These decreases tended to disappear during the second year of study. Food consumption NOAEL = 50 ppm or 2.20 mg/kg-d (males) and 2.92 mg/kg-d (females). LOAEL = 250 ppm.</p>
臨床所見(重篤度、所見の発現時期と持続時間)	<p>臨床所見において変化はみられなかった。 臨床所見NOAEL = 250 ppm もしくは 11.10 mg/kg-d (雄) 臨床所見NOAEL = 15.12 mg/kg-d (雌) LOAELは設定されなかった。 (詳細は英文参照)</p>	<p>Clinical signs: No differences were noted between control and methyl bromide-treated animals regarding behavioral or clinical signs. Clinical signs NOAEL = 250 ppm or 11.10 mg/kg-d (males) and 15.12 mg/kg-d (females). No LOAEL established. Clinical chemistries: Other than spurious changes considered unrelated to exposure, no clinical chemistry parameters were affected by methyl bromide exposure. Clinical chemistry NOAEL = 250 ppm or 11.10 mg/kg-d (males) and 15.12 mg/kg-d (females). No LOAEL established.</p>
眼科学的所見(発生率、重篤度)	<p>眼科学的所見において影響はみられなかった。 NOAEL = 250 ppm もしくは 11.10 mg/kg-d (雄) NOAEL = 15.12 mg/kg-d (雌) LOAELは設定されなかった。 (詳細は英文参照)</p>	<p>Ophthalmic Effects: Ophthalmic examinations revealed no effect from methyl bromide exposure. Body weight NOAEL = 250 ppm or 11.10 mg/kg-d (males) and 15.12 mg/kg-d (females). No LOAEL established.</p>
血液学的所見(発生率、重篤度)	<p>影響なし。 血液学的所見NOAEL = 250 ppm もしくは 11.10 mg/kg-d (雄) 血液学的所見NOAEL = 15.12 mg/kg-d (雌) LOAELは設定されなかった。 (詳細は英文参照)</p>	<p>Hematology: Other than spurious changes considered unrelated to exposure, no hematological parameters were affected by methyl bromide exposure. Hematology NOAEL = 250 ppm or 11.10 mg/kg-d (males) and 15.12 mg/kg-d (females). No LOAEL established.</p>
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)	<p>影響なし。 尿検査NOAEL = 250 ppm or 11.10 mg/kg-d (雄) 尿検査NOAEL = 15.12 mg/kg-d (雌) LOAELは設定されなかった。 (詳細は英文参照)</p>	<p>Urinalyses: Other than spurious changes considered unrelated to exposure, no urinalysis parameters were affected by methyl bromide exposure. Urinalysis NOAEL = 250 ppm or 11.10 mg/kg-d (males) and 15.12 mg/kg-d (females). No LOAEL established.</p>
死亡数(率)、死亡時間	<p>影響なし。 死亡率NOAEL = 250 ppm もしくは 11.10 mg/kg-d (雄) 死亡率見NOAEL = 15.12 mg/kg-d (雌) LOAELは設定されなかった。 (詳細は英文参照)</p>	<p>Morbidity/Mortality: No differences in survival was attributable to methyl bromide administration. Mortality NOAEL = 250 ppm or 11.10 mg/kg-d (males) and 15.12 mg/kg-d (females). No LOAEL established.</p>
剖検所見(発生率、重篤度)		
臓器重量	<p>影響なし。 臓器重量NOAEL = 250 ppm もしくは 11.10 mg/kg-d (雄) 臓器重量NOAEL = 15.12 mg/kg-d (雌) LOAELは設定されなかった。 (詳細は英文参照)</p>	<p>Organ weights: Methyl bromide exposure produced no effect upon absolute or relative organ weights. A statistically significant difference in absolute kidney, liver, and testes weights was found in high dose males. However, when compared on a basis relative to total body weight, no difference was detected. Because of this, and because no accompanying microscopic changes were observed in these organs, organ weight changes were not considered to be the result of methyl bromide exposure. Organ weight NOAEL = 250 ppm or 11.10 mg/kg-d (males) and 15.12 mg/kg-d (females). No LOAEL established.</p>
病理組織学的所見(発生率、重篤度)	<p>影響なし。 病理組織学NOAEL = 250 ppm もしくは 11.10 mg/kg-d (雄) 病理組織学NOAEL = 15.12 mg/kg-d (雌) LOAELは設定されなかった。 (詳細は英文参照)</p>	<p>Gross pathology: Examination at necropsy revealed no effect from methyl bromide exposure. NOAEL = 250 ppm or 11.10 mg/kg-d (males) and 15.12 mg/kg-d (females). Histopathology: Although incidental non-neoplastic were found, none were considered related to methyl bromide exposure. No affect on tumor incidence was found. NOAEL = 250 ppm or 11.10 mg/kg-d (males) and 15.12 mg/kg-d (females).</p>
実際に摂取された量		
腫瘍発生までの時間		

用量反応性		
統計的結果		
注釈	(上記記載内容、及び英文参照)	No toxicologically significant effects from methyl bromide exposure were seen on clinical observations, body weight, body weight gain, food consumption, clinical pathology, urinalysis, ophthalmology, absolute or relative organ weights, or macroscopic or microscopic pathology, including tumor incidence. Based on the results of this study, the NOEL for methyl bromide when administered in the diet in microcapsules was 50 ppm or 2.20 mg/kg-d (males) and 2.92 mg/kg-d (females) and the LOAEL was 250 ppm or 11.10 mg/kg-d (males) and 15.12 mg/kg-d (females).
結論		
実験動物における発がん性の有無	なし	なし
注釈		
信頼性	1 制限なく信頼性あり	1 制限なく信頼性あり
信頼性の判断根拠	データの質は高いと考えられる。報告書には方法と結果が包括的に記載されている。信頼ある試験機関が試験を実施した。	The data quality from this study is considered high. The report included comprehensive documentation for method and results. The conducting laboratory is reputable. This study reaches Klimisch level 1.
出典	Mertens, J.J.W.M., 1997. A 24-month chronic dietary study of methyl bromide in rats. Unpublished report from WIL Research Laboratories, Project No. WIL-49014.	Mertens, J.J.W.M., 1997. A 24-month chronic dietary study of methyl bromide in rats. Unpublished report from WIL Research Laboratories, Project No. WIL-49014.
引用文献(元文献)	(83)	(83)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等	純度: 99.8% 供給状態: 臭化メチル圧縮液化ガス(加圧シリンダー5本中) 供給者: Matheson Gas Products, Joliet, IL. Lot No. E21-1012-00.	Purity: 99.8% Supplied as: Liquefied, compressed methyl bromide gas in five pressurized cylinders supplied by Matheson Gas Products, Joliet, IL. Lot No. E21-1012-00.
注釈		
方法		
方法/ガイドライン	その他: 非特定	other: not specified
試験のタイプ	選択してください	選択してください
GLP適合	はい	はい
試験を行った年	1992	1992
試験系(種/系統)	Mouse B6C3F1	Mouse B6C3F1
性別	MF	MF
投与量	設定濃度: 0, 10, 33, 100 ppm. 実測濃度: 10%以内	Nominal concentrations: 0, 10, 33 and 100 ppm. Actuals were within 10%
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	ガス吸入	ガス吸入
処理頻度	6時間/日、5日間/週(週末は処理なし)	6 hours/day, 5 days/week (no exposure on weekends)
コントロールグループと処理		
試験条件		
統計学的処理		
結果		
体重、体重増加量	対照群と比較して体重のわずかな減少あり。 体重NOAEL = 33 ppm (雄雌) LOAEL = 100 ppm (雄雌) (詳細は英文参照)	Body weights: In the 100 ppm group, male and female body weights were slightly less than controls after four weeks of exposure. Differences were not always statistically significant in males but were always so in females. Females exposed to 10 and 33 ppm showed weight loss from exposure days 309 to 337. Females from these two groups resumed weight gain thereafter. Males, which were housed in the same chambers at 10 and 33 ppm, did not show weight loss or decreased weight gain during the same period. Nor did females at 100 ppm exhibit these effects over this period. No reason was apparent that explained the weight loss in the 10 and 33 ppm females. Much earlier in the study (exposure week 5), a transient lower body weight (not frank weight loss) was found in the 33 ppm males that did not occur at the next weighing. Because of the inconsistencies, no treatment related effect was ascribed to the body weight effects in subjects exposed to 10 or 33 ppm. However, methyl bromide exposure did appear related to the effects found in the 100 ppm group. Body weight NOAEL = 33 ppm (males and females); Body weight LOAEL = 100 ppm (males and females).
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)	対照群と比較して変化なし。 臨床所見NOAEL = 100 ppm (雄雌) LOAELは設定されなかった。 (詳細は英文参照)	Clinical signs: No differences were noted between control and methyl bromide-treated animals regarding behavioral or clinical signs. Clinical signs NOAEL = 100 ppm (males and females). No LOAEL established.
眼科学的所見(発生率、重篤度)		

血液学的所見(発生率、重篤度)	統計的に意味をもつランダムな差異が見られた。 (詳細は英文参照)	Hematology: Random differences were found at week 13 and week 52 that reached statistical significance in some groups. Specifically, mean packed cell volume was slightly decreased in 100 ppm females at 13 weeks (but not 52 weeks and erythrocyte count was normal). Also, neutrophil counts were increased in the 10 ppm females at week 13, erythrocyte counts were decreased in 30 ppm males at 13 weeks. At week 52, white cell counts were higher in 10 and 100 ppm males when compared statistically to an unusually low control value but were within the normal range.
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間	増加した。 死亡率NOAEL = 33 ppm (雄雌) 死亡率LOAEL = 100 ppm (雄雌) (詳細は英文参照)	Morbidity/Mortality: Increased in 100 ppm group toward end of second year in both males and females. Increased mortality was associated with increased incidence of heart thrombi, which the study authors speculated might be causative. Mortality NOAEL = 33 ppm (males and females); Mortality LOAEL = 100 ppm (males and females).
剖検所見(発生率、重篤度)		
臓器重量	絶対臓器重量NOAEL = 10 ppm (雌) 絶対臓器重量NOAEL = 33 ppm (雄) 相対臓器重量NOAEL = 10 ppm (雄) 相対臓器重量NOAEL = 33 ppm (雌) (詳細は英文参照)	Organ weights: At 53 weeks, average absolute kidney weights were significantly lower in 100 ppm males and 33 and 100 ppm females. Expressed relative to total body weight, kidney weights were significantly lower for 33 and 100 ppm males and these decreases exhibited a dose-response relationship. Brain weights were decreased compared to controls on an absolute but not relative basis in 100 ppm females at 53 and 104 weeks. While not statistically significant for males the same pattern held for absolute brain weights (also no difference relative to body weight). Relative but not absolute thyroid weights were decreased in females exposed to 33 ppm (not considered treatment related). Absolute organ weight NOAEL = 10 ppm (females) and 33 ppm (males). Relative organ weight NOAEL = 10 ppm (males) and 33 ppm (females).
病理組織学的所見(発生率、重篤度)	(詳細は英文参照)	Histopathology: In the high exposure group only, an increased incidence over controls was observed of lesions in the central nervous system that was largely associated with early deaths in this group. Lesions of the cerebrum included focal, cortical neuronal necrosis occasionally with mild edema, congestion and gliosis. Cerebellar lesions included focal to diffuse nuclear pyknosis of cells from the internal granular layer without involvement of Purkinje cells. NOAEL = 33 ppm. LOAEL = 100 ppm. Chronic cardiomyopathy occurred in a dose-response manner, although this finding was statistically significant only in the high exposure group when compared to controls. Myocardial degeneration was also seen but only in the high exposure group. Myocardial degeneration, seen in 30 of 33 male mice dying prematurely from exposure to 100 ppm methyl bromide, was characterized by "myofiber sarcoplasmic hyalinization and/or vacuolization and by variation in nuclear size accompanied by mild interstitial hypercellularity." Myocardial degeneration was similarly more highly associated in female mice dying early in the 100 ppm methyl bromide group. Chronic cardiomyopathy included "focal myofiber atrophy, fibrosis, and focal to diffuse mononuclear cell infiltrates" and was a lesion seen with far greater frequency in mice surviving exposure to the 24-month final sacrifice. Chronic cardiomyopathy NOAEL (none established). LOAEL = 10 ppm. Sternal dysplasia was detected at a statistically increased incidence in the 100 ppm group and was observed in lower dose groups, suggesting a dose-response relationship. This non-lethal lesion may be described as "ventral to ventrolateral deviation of the manubrium with subluxation of other sternbrae. Irregular proliferative protuberances composed of well-differentiated mature cartilage and bone were often present along the sternbral articular surfaces causing a 'lipping' effect." NOAEL = 10 ppm. LOAEL = 33 ppm. No increase in tumor incidence was associated with methyl bromide exposure Histopathology (cardiomyopathy) NOAEL = none established; Histopathology LOAEL = 10 ppm (both sexes).
実際に摂取された量		
腫瘍発生までの時間		
用量反応性		
統計的結果		

注釈	いずれの用量レベルにおいても、ばく露による発がん性はなかった。(英文参照)	<p>Before scheduled sacrifices, significantly early mortality was observed in the 100 ppm high exposure group. After 20 weeks of exposure, 31% of males and 8% of females from this group had died. Consequently, exposures were discontinued and this group was observed for the remainder of the study. Due to the high mortality at 100 ppm, mice from this group were not evaluated at the 6-month interim sacrifice. Survival in groups exposed to 10 and 30 ppm methyl bromide was similar to controls. Mice from the 100 ppm exposure group showed concomitant reduced body weights and reduced absolute and relative thymus weights, as well as clinical signs that included tremors, abnormal posture, and limb paralysis. These clinical signs also were observed in 1 control, 5 low-exposure, and 9 mid-exposure animals, indicating a dose-response relationship. No changes in hematology related to methyl bromide exposure were noted in the study.</p> <p>No adverse effects were found at the 6-month interim sacrifice in 10 and 33 ppm mice of either sex (10/sex/group were evaluated). At the 15-month interim sacrifice, females but not males from the high exposure group were evaluated and showed lesions of the brain, sternum, and heart. Specifically, cerebellar and cardiac degeneration (1 of 8 incidence for both lesions) and sternum dysplasia (2 of 8) occurred in the 100 ppm females. At 33 ppm, 1 of 10 males and 1 of 10 females showed sternum dysplasia. Tumors were found at 15 months that occurred randomly in control and treated groups and showing no dose-response relationship.</p> <p>The overall Histological NOAEL was not established due to chronic cardiomyopathy effects. Cardiomyopathy was not significantly increased in the low or mid-exposure groups but a dose-response trend was evident suggesting biological significance for this finding in the lower exposure groups. Ignoring cardiomyopathy, a NOAEL of 33 ppm and a LOAEL of 100 ppm was evident for non-cancer effects from this study. No carcinogenic effect was associated from methyl bromide exposure at any exposure level.</p>
結論		
実験動物における発がん性の有無	なし	なし
注釈		
信頼性	1 制限なく信頼性あり	1 制限なく信頼性あり
信頼性の判断根拠	データの質は高いと考えられる。報告書には方法と結果が包括的に記載されている。信頼ある試験機関が試験を実施した。	The data quality from this study is considered high. The report included comprehensive documentation for method and results. The conducting laboratory is reputable. This study reaches Klimisch level 1.
出典	Eustis, S.L., Haber, S.B., Drew, R.T., Yang, R.S.H. 1988. Toxicology and pathology of methyl bromide in F344 rats and B6C3F1 mice following repeated inhalation exposure, Fund. Appl. Toxicol. 11:594-610. NTP, 1992. Toxicology and Carcinogenesis Studies of Methyl Bromide (CAS No. 74-83-9) in B6C3F1 Mice (Inhalation Studies). National Toxicology Program, Research Triangle Park, N.C. March 1992. NTIS Publication Number: PB92189257.	Eustis, S.L., Haber, S.B., Drew, R.T., Yang, R.S.H. 1988. Toxicology and pathology of methyl bromide in F344 rats and B6C3F1 mice following repeated inhalation exposure, Fund. Appl. Toxicol. 11:594-610. NTP, 1992. Toxicology and Carcinogenesis Studies of Methyl Bromide (CAS No. 74-83-9) in B6C3F1 Mice (Inhalation Studies). National Toxicology Program, Research Triangle Park, N.C. March 1992. NTIS Publication Number: PB92189257.
引用文献(元文献)	(32) (98)	(32) (98)
備考		

5-9 生殖・発生毒性(受胎能と発生毒性を含む)

A. 受胎能

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
方法/ガイドライン		
試験のタイプ		
GLP適合	不明	不明
試験を行った年		
試験系(種/系統)	Rat	Rat
性別	M	M
投与量	160 ppm (622 mg/m3)	160 ppm (622 mg/m3)
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	ガス吸入 全身吸入	ガス吸入 whole body inhalation
試験期間	ばく露期間: 6週間まで	Exposure Period: Up to 6 weeks
交配前暴露期間		
試験条件		
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		
受胎指数(着床痕数/交配数)		

交尾前期間(交配までの日数及び交配までの性周期回数)		
妊娠期間(妊娠0日から起算)		
妊娠指数(生存胎仔数/着床痕数)		
哺乳所見		
性周期変動		
精子所見		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
着床数		
黄体数		
未熟卵胞数		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
用量反応性		
同腹仔数及び体重		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
離乳までの分娩後生存率		
新生仔所見(肉眼的な異常)		
生後発育及び発育率		
陰開口又は精巣下降(包皮分離)		
生殖器-肛門間距離などその他の観察事項		
臓器重量		
統計的結果		
注釈	精母細胞の変性や後期の精子細胞の変性が見られる。 (詳細は英文参照)	Degeneration of spermatocytes and late stage spermatids characterized by separation and sloughing as well as formation of intratubular multinucleated giant cells. Degeneration of spermatogenic epithelium included more or less severe loss of spermatogenic epithelial components.
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)		
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)		
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Eustis, S.L., Haber, S.B., Drew, R.T., Yang, R.S.H. 1988. Toxicology and pathology of methyl bromide in F344 rats and B6C3F1 mice following repeated inhalation exposure, Fund. Appl. Toxicol. 11:594-610.	Eustis, S.L., Haber, S.B., Drew, R.T., Yang, R.S.H. 1988. Toxicology and pathology of methyl bromide in F344 rats and B6C3F1 mice following repeated inhalation exposure, Fund. Appl. Toxicol. 11:594-610.
引用文献(元文献)	(32)	(32)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
方法／ガイドライン		
試験のタイプ	受精率 (精子形態と腔細胞学試験 (SMVCEs))	Fertility (Sperm morphology and vaginal cytology examinations (SMVCEs))
GLP適合	不明	不明
試験を行った年		
試験系(種／系統)	Mouse B6C3F1	Mouse B6C3F1
性別	MF	MF
投与量	10, 40, 120 ppm (39, 156, 467 mg/m3)	10, 40, 120 ppm (39, 156, 467 mg/m3)
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	ガス吸入 全身吸入	ガス吸入 whole body inhalation
試験期間	13週間	Duration of test: 13 weeks
交配前暴露期間		
試験条件		
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		

受胎指数(着床痕数/交配数)		
交尾前期間(交配までの日数及び交配までの性周期回数)		
妊娠期間(妊娠0日から起算)		
妊娠指数(生存胎仔数/着床痕数)		
哺乳所見		
性周期変動		
精子所見		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
着床数		
黄体数		
未熟卵胞数		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
用量反応性		
同腹仔数及び体重		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
離乳までの分娩後生存率		
新生仔所見(肉眼的な異常)		
生後発育及び発育率		
陰開口又は精巣下降(包皮分離)		
生殖器-肛門間距離などその他の観察事項		
臓器重量		
統計的結果		
注釈	体重の減少 精巣上体尾の重量減少 精巣上体とこう丸の相対重量の増加 精子密度減少 異常精子割合の増加 雌検体への影響は報告なし	Decreased body weight. Increased relative epididymis and testicular weights, decreased sperm density, increased percent abnormal sperm. No effects reported for females.
結論		
PIに対するNOAEL (NOEL)又はLOAEL (LOEL)		
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)		
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Morrissey et al., 1988	Morrissey et al., 1988
引用文献(元文献)	(89)	(89)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
方法／ガイドライン	受胎能	Fertility
試験のタイプ	選択してください	選択してください
GLP適合	不明	不明
試験を行った年		
試験系(種／系統)	Rat	Rat
性別	M	M
投与量	70 ppm (272 mg/m3)	70 ppm (272 mg/m3)
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	ガス吸入 全身吸入	ガス吸入 whole body inhalation
試験期間		
交配前暴露期間		
試験条件		
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		
受胎指数(着床痕数/交配数)		

交尾前期間(交配までの日数及び交配までの性周期回数)		
妊娠期間(妊娠0日から起算)		
妊娠指数(生存胎仔数/着床痕数)		
哺乳所見		
性周期変動		
精子所見		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
着床数		
黄体数		
未熟卵胞数		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
用量反応性		
同腹仔数及び体重		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
離乳までの分娩後生存率		
新生仔所見(肉眼的な異常)		
生後発育及び発育率		
陰開口又は精巣下降(包皮分離)		
生殖器-肛門間距離などその他の観察事項		
臓器重量		
統計的結果	低度かつ高頻度でこう丸変質がみられた。	Testicular degeneration seen with low severity but high frequency.
注釈	繁殖能力は弱まらなかった。	Reproductive performance unimpaired
結論		
PIに対するNOAEL (NOEL)又はLOAEL (LOEL)		
F1Iに対するNOAEL (NOEL)又はLOAEL (LOEL)		
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Hardin, B.D., Bond, G.P., Sikov, M.R., Andrew, F.D., Beliles, R.P., Niemeier, R.W., 1981. Testing of selected workplace chemicals for teratogenic potential. Scand. J. Work Environ. Health 7:66-75. Sikov, M.R., Cannon, W.C., Carr, D.B., Miller, R.A., Montgomery, L.F., Phelps, D.W., 1981. Teratologic assessment of buthylene oxide, strylene oxide and methyl bromide (Contract-No. 210-78-0025). Cincinnati, Ohio, US Department of Health and Human Services, 84 pp.	Hardin, B.D., Bond, G.P., Sikov, M.R., Andrew, F.D., Beliles, R.P., Niemeier, R.W., 1981. Testing of selected workplace chemicals for teratogenic potential. Scand. J. Work Environ. Health 7:66-75. Sikov, M.R., Cannon, W.C., Carr, D.B., Miller, R.A., Montgomery, L.F., Phelps, D.W., 1981. Teratologic assessment of buthylene oxide, strylene oxide and methyl bromide (Contract-No. 210-78-0025). Cincinnati, Ohio, US Department of Health and Human Services, 84 pp.
引用文献(元文献)	(42) (116)	(42) (116)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
方法／ガイドライン		
試験のタイプ	受胎能	Fertility
GLP適合	不明	不明
試験を行った年		
試験系(種／系統)	Mouse	Mouse
性別	M	M
投与量	160 ppm (622 mg/m3)	160 ppm (622 mg/m3)
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	ガス吸入	ガス吸入
	全身吸入	whole body inhalation
試験期間	ばく露期間: 6週間まで	Exposure Period: up to 6 weeks
交配前暴露期間		
試験条件		
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		

受胎指数(着床痕数/交配数)		
交尾前期間(交配までの日数及び交配までの性周期回数)		
妊娠期間(妊娠0日から起算)		
妊娠指数(生存胎仔数/着床痕数)		
哺乳所見		
性周期変動		
精子所見		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
着床数		
黄体数		
未熟卵胞数		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
用量反応性		
同腹仔数及び体重		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
離乳までの分娩後生存率		
新生仔所見(肉眼的な異常)		
生後発育及び発育率		
膣開口又は精巣下降(包皮分離)		
生殖器-肛門間距離などその他の観察事項		
臓器重量		
統計的結果	低度かつ高頻度でこう丸変質がみられた。	Testicular degeneration seen with low severity but high frequency.
注釈		
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)		
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)		
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Eustis, S.L., Haber, S.B., Drew, R.T., Yang, R.S.H. 1988. Toxicology and pathology of methyl bromide in F344 rats and B6C3F1 mice following repeated inhalation exposure, Fund. Appl. Toxicol. 11:594-610.	Eustis, S.L., Haber, S.B., Drew, R.T., Yang, R.S.H. 1988. Toxicology and pathology of methyl bromide in F344 rats and B6C3F1 mice following repeated inhalation exposure, Fund. Appl. Toxicol. 11:594-610.
引用文献(元文献)	(32)	(32)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
方法／ガイドライン		
試験のタイプ	受胎能	Fertility
GLP適合	不明	不明
試験を行った年		
試験系(種／系統)	Rat Sprague-Dawley	Rat Sprague-Dawley
性別	MF	MF
投与量	0, 200, 300, or 400 ppm (10/dose)	0, 200, 300, or 400 ppm (10/dose)
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	ガス吸入 全身吸入	ガス吸入 whole body inhalation
試験期間	ばく露期間: 6週間	Exposure Period: 6 weeks
交配前暴露期間		
試験条件		
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		
受胎指数(着床痕数/交配数)		

交尾前期間(交配までの日数及び交配までの性周期回数)		
妊娠期間(妊娠0日から起算)		
妊娠指数(生存胎仔数/着床痕数)		
哺乳所見		
性周期変動		
精子所見		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
着床数		
黄体数		
未熟卵胞数		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
用量反応性		
同腹仔数及び体重		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
離乳までの分娩後生存率		
新生仔所見(肉眼的な異常)		
生後発育及び発育率		
陰開口又は精巣下降(包皮分離)		
生殖器-肛門間距離などその他の観察事項		
臓器重量		
統計的結果	以下の割合で悪影響がみられた。 200 ppm, 1/10, 300 ppm, 6/10, 400 ppm, 6/8 (詳細は英文参照)	In 1 of 10 rats at 200 ppm and 6 of 10 at 300 ppm, and 6 of 8 at 400 ppm, adverse effects on the testes were seen. These effects were unilateral and included: atrophy of seminal epithelium, incomplete spermatogenesis, giant cells in seminal tubules. Necrotic spermatocytes occurred in seminal fluid without spermatozoa in tubules of epididymis adjacent to atrophied testes.
注釈		
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)		
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)		
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Kato, N., Morinobu, S., Ishizu, S. 1986. Subacute inhalation experiment for methyl bromide in rats. Ind. Health 24:87-103.	Kato, N., Morinobu, S., Ishizu, S. 1986. Subacute inhalation experiment for methyl bromide in rats. Ind. Health 24:87-103.
引用文献(元文献)	(66)	(66)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
方法／ガイドライン		
試験のタイプ	受胎能	Fertility
GLP適合	不明	不明
試験を行った年		
試験系(種／系統)	Rat FS44N	Rat FS44N
性別	M	M
投与量		
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	ガス吸入	ガス吸入
試験期間	全身吸入	Whole body inhalation
交配前暴露期間	5日間	Exposure Period: 5 days
試験条件		
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		
受胎指数(着床痕数/交配数)		

交尾前期間(交配までの日数及び交配までの性周期回数)		
妊娠期間(妊娠0日から起算)		
妊娠指数(生存胎仔数/着床痕数)		
哺乳所見		
性周期変動		
精子所見		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
着床数		
黄体数		
未熟卵胞数		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
用量反応性		
同腹仔数及び体重		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
離乳までの分娩後生存率		
新生仔所見(肉眼的な異常)		
生後発育及び発育率		
陰開口又は精巣下降(包皮分離)		
生殖器-肛門間距離などその他の観察事項		
臓器重量		
統計的結果	こう丸重量、精子生産/日、有尾の精巣上体精子数、精子形態、運動精子割合、inear精子速度、精巣上体精子、こう丸組織学への影響なし。 ばく露中において、血漿テストロンと精巣のノンプロテインスルフヒドリル 濃度が一時的に減少した。	No effect on testis weight, daily sperm production, cauda epididymal sperm count, sperm morphology, percent motile sperm, inear sperm velocity, and epididymal and testicular histology. Transient decrease in plasma testosterone and testicular nonprotein sulfhydryl concentrations during exposure.
注釈		
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)		
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)		
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Hurtt, M.E., Morgan, K.T., Working, P.K., 1987. Histopathology of acute toxic responses in selected tissues from rats exposed by inhalation to methyl bromide. Fundam. Appl. Toxicol., 9:352-365.	Hurtt, M.E., Morgan, K.T., Working, P.K., 1987. Histopathology of acute toxic responses in selected tissues from rats exposed by inhalation to methyl bromide. Fundam. Appl. Toxicol., 9:352-365.
引用文献(元文献)	(58)	(58)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
方法／ガイドライン		
試験のタイプ	受胎能	Fertility
GLP適合	不明	不明
試験を行った年		
試験系(種／系統)	Mouse B6C3F1	Mouse B6C3F1
性別	MF	MF
投与量	0, 20, 又は 70 ppm (0, 78, 272 mg/m3) (10/雄/用量)	0, 20, or 70 ppm (0, 78, 272 mg/m3) (10/males/dose)
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	ガス吸入 全身吸入	ガス吸入 whole body inhalation
試験期間	5日間	Exposure Period: 5 days
交配前暴露期間		
試験条件		
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		

受胎指数(着床痕数/交配数)		
交尾前期間(交配までの日数及び交配までの性周期回数)		
妊娠期間(妊娠0日から起算)		
妊娠指数(生存胎仔数/着床痕数)		
哺乳所見		
性周期変動		
精子所見		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
着床数		
黄体数		
未熟卵胞数		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
用量反応性		
同腹仔数及び体重		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
離乳までの分娩後生存率		
新生仔所見(肉眼的な異常)		
生後発育及び発育率		
陰開口又は精巣下降(包皮分離)		
生殖器-肛門間距離などその他の観察事項		
臓器重量		
統計的結果	精子への影響はみられなかった。	No effect on spermatozoa found
注釈		
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)		
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)		
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	McGregor, D.B., 1981. Tier II mutagenic screening of 13 NIOSH priority compounds, Report No. 32 – Individual compound report: methyl bromide. Cincinnati, Ohio, National Institute of Occupational Safety and Health, 190 pp (PB83-130211).	McGregor, D.B., 1981. Tier II mutagenic screening of 13 NIOSH priority compounds, Report No. 32 – Individual compound report: methyl bromide. Cincinnati, Ohio, National Institute of Occupational Safety and Health, 190 pp (PB83-130211).
引用文献(元文献)	(79)	(79)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
方法		
方法/ガイドライン		
試験のタイプ	受精率 (精子形態と腔細胞学試験 (SMVCEs))	Fertility, Sperm morphology and vaginal cytology examinations
GLP適合	不明	不明
試験を行った年		
試験系(種/系統)	Rat F344	Rat F344
性別	MF	MF
投与量	30, 60, 120 ppm (117, 233, 467 mg/m3)	30, 60, 120 ppm (117, 233, 467 mg/m3)
各用量群(性別)の動物数		
溶媒(担体)	溶媒無し	溶媒無し
投与経路	ガス吸入 全身吸入	ガス吸入 whole body inhalation
試験期間	13週間	13 weeks
交配前暴露期間		
試験条件		
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		

受胎指数(着床痕数/交配数)		
交尾前期間(交配までの日数及び交配までの性周期回数)		
妊娠期間(妊娠0日から起算)		
妊娠指数(生存胎仔数/着床痕数)		
哺乳所見		
性周期変動		
精子所見		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
着床数		
黄体数		
未熟卵胞数		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
用量反応性		
同腹仔数及び体重		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
離乳までの分娩後生存率		
新生仔所見(肉眼的な異常)		
生後発育及び発育率		
陰開口又は精巣下降(包皮分離)		
生殖器-肛門間距離などその他の観察事項		
臓器重量		
統計的結果	体重の減少 精巣上体尾の重量減少 こう丸の相対重量の増加 精子密度減少 異常精子割合の増加 雌検体の発情周期に影響なし	Decreased body weight, decreased cauda epididymis weight, increased relative testicular weight, decreased sperm density, creased percent abnormal sperm. No effects on estrous cycle of females.
注釈		
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)		
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)		
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Morrissey et al., 1988	Morrissey et al., 1988
引用文献(元文献)	(89)	(89)
備考		

B. 発生毒性

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等	純度: 99.5% 最低純度 供給状態: 圧縮液化ガス(加圧シリンダー中) 供給者: Matheson Gas Products	Purity: 99.5% minimum purity Supplied as: Liquefied, compressed methyl bromide gas in pressurized cylinders, supplied by Matheson Gas Products).
注釈		
方法		
方法／ガイドライン	手順ガイドラインは非特定。試験は、手順が標準化される以前に実施(1981年)。	No specific protocol guideline specified. Study was conducted in 1981, prior to standardized protocols.
GLP適合	不明	不明
試験を行った年	1981	1981
試験系(種／系統)	Rabbit New Zealand White	Rabbit New Zealand White
性別	F	F
投与量	設定濃度: 0, 20, 70 ppm. 実測濃度 (+ SD) (表参照)	Nominal concentrations 0, 20 and 70 ppm. Actual conc (+ SD) see table
各用量群(性別)の動物数		
投与経路	ガス吸入 全身吸入	ガス吸入 inhalation, whole body
試験期間	(英文参照)	Duration of test: Days 1 through 24 of gestation for days 0 and 20 ppm, groups, exposures terminated at day 15 for 70 ppm group because of toxicity
交配前暴露期間		

試験条件	(英文参照)	<table><tr><td>Group</td><td>Methyl Bromide Concentration (ppm) target (Nominal)</td><td>Methyl Bromide Concentration (ppm) Actual (Measured)*</td><td>No/Dams/Concentration</td></tr><tr><td>Negative Control</td><td>0</td><td>0</td><td>24</td></tr><tr><td>Low</td><td>20</td><td>19.3 ± 0.19</td><td>24</td></tr><tr><td>High</td><td>70</td><td>68.7 ± 2.18</td><td>24</td></tr></table> <p>* Plus or minus one standard deviation</p>	Group	Methyl Bromide Concentration (ppm) target (Nominal)	Methyl Bromide Concentration (ppm) Actual (Measured)*	No/Dams/Concentration	Negative Control	0	0	24	Low	20	19.3 ± 0.19	24	High	70	68.7 ± 2.18	24
Group	Methyl Bromide Concentration (ppm) target (Nominal)	Methyl Bromide Concentration (ppm) Actual (Measured)*	No/Dams/Concentration															
Negative Control	0	0	24															
Low	20	19.3 ± 0.19	24															
High	70	68.7 ± 2.18	24															
統計学的処理																		
結果																		
死亡数(率)、死亡時間	親死亡率 NOAEL = 20 ppm. 親死亡率 LOAEL = 70 ppm. (詳細は英文参照)	Maternal morbidity/mortality: 24 of 25 dams did not survive exposure of 70 ppm methyl bromide. This occurred despite the fact that exposures were discontinued on day 15 of gestation (scheduled to continue through day 24 of gestation). No deaths occurred in the 20 ppm group. Maternal mortality NOAEL = 20 ppm. Maternal mortality LOAEL = 70 ppm.																
用量あたり妊娠数	妊娠数に差はなかった。 NOAEL = 70 LOAELは設定されなかった。	Maternal reproductive effects: No differences in pregnancy rates. NOAEL = 70. LOAEL not established.																
流産数																		
早期/後期吸収数																		
着床数																		
黄体数																		
妊娠期間(妊娠0日から起算)																		
体重、体重増加量	親体重 NOAEL = 20 ppm. 親体重 LOAEL = 70 ppm. (詳細は英文参照)	Maternal body weights: In the 70 ppm group, severe body weight loss was observed after approximately 10 days of exposure severe clinical signs, weight loss and deaths began to occur. No significant differences were observed in dams from the 20 ppm group when compared to controls. Maternal body weight NOAEL = 20 ppm. Maternal body weight LOAEL = 70 ppm.																
摂餌量、飲水量	親体重 NOAEL = 20 ppm. 親体重 LOAEL = 70 ppm. (詳細は英文参照)	Food consumption: In the 70 ppm group, food consumption was markedly reduced after approximately 10 days of exposure when severe clinical signs, weight loss and deaths began to occur. No significant differences were observed in dams from the 20 ppm group when compared to controls. Maternal food consumption NOAEL = 20 ppm. Maternal food consumption LOAEL = 70 ppm.																
臨床所見(重篤度、所見の発現時期と持続時間)	親体重 NOAEL = 20 ppm. 親体重 LOAEL = 70 ppm. (詳細は英文参照)	Maternal clinical signs: Rabbits from the 70 ppm methyl bromide group began to show generalized signs of distress following one week of exposure. Signs progressed to convulsive movements, and later, to hind-limb paresis. Termination of exposure after 15 days resulted in improvement in some of the subjects. However, only one subject survived until the 30 days gestation period was completed (see morbidity/mortality). No clinical signs of toxicity were noted in the lower exposure group. Clinical signs NOAEL = 20 ppm. LOAEL = 70 ppm.																
血液学的所見(発生率、重篤度)																		
血液生化学的所見(発生率、重篤度)																		
剖検所見(発生率、重篤度)																		
臓器重量(総子宮量への影響)	親体重 NOAEL = 20 ppm. 親体重 LOAEL = 70 ppm. (詳細は英文参照)	Maternal organ weights: No affect on organ weights was observed in the 20 ppm group other than a tendency for increased lung weights that was not statistically significant. In the 70 ppm group, where significant toxicity occurred, the liver weight of the single surviving dam was markedly less than the control mean. Maternal absolute and relative organ weight NOAEL = 20 ppm. LOAEL = 70 ppm.																
病理組織学的所見(発生率、重篤度)	統計的に意味のある増加はみられなかった。 親体重 NOAEL = 20 ppm. 親体重 LOAEL は設定されなかった。(残存検体が少なかったため) (詳細は英文参照)	Maternal histopathology: No statistically significant increases of pathological lesions were noted in the organs examined when methyl bromide exposed dams were compared to controls. NOAEL = 20 ppm. LOAEL not established due to poor survival.																
同腹仔数及び体重																		
生存数(生存胎仔数及び胎仔数)																		
性比																		
生存率(生後4日目生存仔数/総分娩仔数)																		
生後発育																		
分娩後生存率																		
肉眼的異常(外表観察、内臓標本、骨格標本)																		
実際に投与された量																		
用量反応性																		

統計的結果	胎児影響 NOAEL = 20 ppm. 胎児影響 LOAEL は設定されなかった。 (詳細は英文参照)	Fetal Effects: No effect was found on fecundity, embryotoxicity, or fetal viability from methyl bromide exposure. Since only one dam survived in the 70 ppm group, an conclusion about the effect of methyl bromide exposure on these parameters cannot be reached for this high exposure group. No effect from methyl bromide exposure was noted on soft-tissue or skeletal anomalies. NOAEL = 20 ppm; LOAEL not established.
注釈		
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)	NOAEL母体毒性: 20 ppm	NOAEL Maternal Toxicity: 20 ppm
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)		
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈	70 ppmにおいて、ばく露したウサギから重度の毒性が観察された。 NOAEL: 20 ppm LOAELは観察されなかった。 (詳細は英文参照)	Severe toxicity was observed in the rabbit dams exposed to 70 ppm methyl bromide. Neurotoxicity and mortality began to occur after one week of exposure in dams from this group and was sufficiently severe so that exposure was terminated prematurely on day 15 (rather than scheduled day 24) of gestation. Only one dam survived until scheduled sacrifice on day 30 of gestation. Fetuses from this dam and dams from the 20 ppm group incurred no higher incidence of embryotoxicity, etotoxicity, or birth defects. The NOAEL for maternal toxicity was 20 ppm and the LOAEL was 70 ppm. Because survival was insufficient to draw conclusions about embryotoxicity, fetotoxicity, or birth defects at the high exposure level, the NOAEL for these endpoints is 20 ppm and a LOAEL was not observed.
信頼性	2 制限付きで信頼性あり(非GLP等)	2 制限付きで信頼性あり(非GLP等)
信頼性の判断根拠	データの質に関する情報がないが、試験は注意深く実施されている。(英文参照)	GLP's were just being standardized and published in the early 1980s. No quality assurance statement was included in the report that refers to published GLPs and no standardized protocol guidelines were reported (none of the latter were established in the early 1980s). The study seems to have been carefully conducted but the report was not comprehensive in its documentation. One section in the report that discusses methodology for the three test substances in general indicates that 24 dams were used per exposure level but another section that discusses methyl bromide specifically indicates that the number was 25. This study would reach Klimisch level 2 "Reliable with Restrictions."
出典	Hardin, B.D., Bond, G.P., Sikov, M.R., Andrew, F.D., Beliles, R.P., Niemeier, R.W., 1981. Testing of selected workplace chemicals for teratogenic potential. Scand. J. Work Environ. Health 7:66-75. Sikov, M.R., Cannon, W.C., Carr, D.B., Miller, R.A., Montgomery, L.F., Phelps, D.W. 1981. Teratologic assessment of buthylene oxide, strylene oxide and methyl bromide (Contract-No. 210-78-0025). Cincinnati, Ohio, US Department of Health and Human Services, 84 pp.	Hardin, B.D., Bond, G.P., Sikov, M.R., Andrew, F.D., Beliles, R.P., Niemeier, R.W., 1981. Testing of selected workplace chemicals for teratogenic potential. Scand. J. Work Environ. Health 7:66-75. Sikov, M.R., Cannon, W.C., Carr, D.B., Miller, R.A., Montgomery, L.F., Phelps, D.W. 1981. Teratologic assessment of buthylene oxide, strylene oxide and methyl bromide (Contract-No. 210-78-0025). Cincinnati, Ohio, US Department of Health and Human Services, 84 pp.
引用文献(元文献)	(42) (115)	(42) (115)
備考		

試験物質名	ブロモメタン	bromomethane			
CAS番号	74-83-9	74-83-9			
純度等	純度: 99.5% 最低純度 供給状態: 圧縮液化ガス(加圧シリンダー中) 供給者: Matheson Gas Products	Purity: 99.5% minimum purity Supplied as: Liquefied, compressed methyl bromide gas in pressurized cylinders, supplied by Matheson Gas Products).			
注釈					
方法					
方法／ガイドライン	手順ガイドラインは非特定。 試験は、手順が標準化される以前に実施(1981年)。	No specific protocol guideline specified. Study was conducted in 1981, prior to standardized protocols.			
GLP適合	不明	不明			
試験を行った年	1981	1981			
試験系(種／系統)	Rat	Rat			
	Wistar	Wistar			
性別	F	F			
投与量	設定濃度: 0, 20, 70 ppm. 実測濃度: (± SD) (表参照)	Nominal concentrations: 0, 20, 70 ppm. Actual conc (± SD): see table above			
各用量群(性別)の動物数					
投与経路	ガス吸入 全身吸入	ガス吸入 inhalation, whole-body			
試験期間	(英文参照)	Exposure period: Days 1-19 of gestation			
交配前暴露期間					
試験条件	(英文参照)	Group	Methyl Bromide Concentration (ppm) target (Nominal)	Methyl Bromide Concentration (ppm) Actual (Measured)*	No/Dams/ Concentration
		Negative Control	0	0	24
		Low	20	19.3 ± 0.19	24
		High	70	68.7 ± 2.18	24
		* Plus or minus one standard deviation			
統計学的処理					
結果					

死亡数(率)、死亡時間	親の死亡率NOAEL = 70 ppm LOAELは設定されなかった。 (英文参照)。	Maternal morbidity/mortality: No deaths occurred that were related to methyl bromide exposure. Two dams died on the first night of breeding that was attributed to fighting as a result of the unfamiliar multiple-subject per cage housing Mortality/morbidity NOAEL = 70 ppm. LOAEL not established.
用量あたり妊娠数	NOAEL = 70 ppm LOAELは設定されなかった。 (英文参照)。	Maternal reproductive effects: No differences were noted in pregnancy rates when methyl bromide exposed dams were compared to controls. NOAEL = 70. LOAEL not established.
流産数		
早期/後期吸収数		
着床数		
黄体数		
妊娠期間(妊娠0日から起算)		
体重、体重増加量	親の体重NOAEL = 20 ppm 親の体重LOAEL = 70 ppm (英文参照)。	Maternal body weights: In the 70 ppm (high-high) group, slight, but statistically significant body weight differences were observed compared to controls after during the gestational period exposures. This difference was not statistically significant by the end of the gestational exposure period. In addition, in the 70 ppm (air-high) group, a statistically significant lower body weight was observed compared to controls after the second week of gestational period exposure. This was the only time period where a statistical difference was observed for the 70 ppm (air-high) group. No weight differences were noted for the 20 ppm groups compared to controls. Maternal body weight NOAEL = 20 ppm. Maternal body weight LOAEL = 70 ppm.
摂餌量、飲水量	摂餌量NOAEL = 70 ppm LOAELは設定されなかった。 (英文参照)	Food consumption: No affect was noted from methyl bromide exposure on food consumption. Maternal food consumption NOAEL = 70 ppm. No LOAEL established.
臨床所見(重篤度、所見の発現時期と持続時間)	臨床所見NOAEL = 70 ppm LOAELは設定されなかった。 (英文参照)	Maternal clinical signs: No clinical signs were reported indicating toxicity from methyl bromide exposure at either exposure level. Clinical signs NOAEL = 70 ppm. No LOAEL established.
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
剖検所見(発生率、重篤度)		
臓器重量(総子宮量への影響)	臓器重量NOAEL = 70 ppm LOAELは設定されなかった。 (英文参照)	Maternal organ weights: No affect on organ weights was observed at either exposure level with either exposure regimen (pre-gestational exposure or no pre-gestational exposure). Maternal absolute and relative organ weight NOAEL = 70 ppm. No LOAEL established.
病理組織学的所見(発生率、重篤度)	病理組織学NOAEL = 20 ppm 病理組織学LOAEL = 70 ppm (英文参照)。	Maternal histopathology: Four of 5 instances of hydronephrosis occurred in the three groups that had a 70 ppm exposure during one of the two exposure periods (i.e., 1 in the air-high group, 1 in the high-air group, and 2 in the high-high group). These instances were not statistically elevated over controls although a pooled analysis was not conducted. NOAEL = 20 ppm. LOAEL = 70 ppm.
同腹仔数及び体重		
生存数(生存胎仔数及び胎仔数)		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
生後発育		
分娩後生存率		
肉眼的異常(外表観察、内臓標本、骨格標本)		
実際に投与された量		
用量反応性		
統計的結果		
注釈	胎児影響NOAEL = 70 ppm LOAELは設定されなかった。 (英文参照)	Fetal Effects: No effect was found on fecundity, embryotoxicity, or fetal viability from methyl bromide exposure. No effect from methyl bromide exposure was noted on soft-tissue or skeletal anomalies. NOAEL = 70 ppm; LOAEL not established.
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)	NOAEL母体毒性: 20 ppm	NOAEL Maternal Toxicity: 20 ppm
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)	NOAEL催奇形性: 70 ppm	NOAEL Teratogenicity: 70 ppm
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈		
信頼性	2 制限付きで信頼性あり(非GLP等)	2 制限付きで信頼性あり(非GLP等)

信頼性の判断根拠	データの質に関する情報がないが、試験は注意深く実施されている。(英文参照)	GLP's were just being standardized and published in the early 1980s. No quality assurance statement was included in the report that refers to published GLPs and no standardized established in the early 1980s). The study seems to have been carefully conducted but the report was not comprehensive in its documentation. Only two exposure levels were evaluated. The number of dams per exposure level in various tables changes from table to table. For example, for mortality results (Table 2), the number of dams exposed is 39 for the "high-air" group yet the table reporting results of sperm positive rats (Table 17) is 37 for this same group and for Table 18 reporting statistics for pups, the number of dams exposed (evaluated?) is 36. No clear explanation for these differences is given. This study would reach Klimisch level 2 "Reliable with Restrictions."
出典	Hardin, B.D., Bond, G.P., Sikov, M.R., Andrew, F.D., Beliles, R.P., Niemeier, R.W., 1981. Testing of selected workplace chemicals for teratogenic potential. Scand. J. Work Environ. Health 7:66-75. Sikov, M.R., Cannon, W.C., Carr, D.B., Miller, R.A., Montgomery, L.F., Phelps, D.W. 1981. Teratologic assessment of buthylene oxide, stryene oxide and methyl bromide (Contract-No. 210-78-0025). Cincinnati, Ohio, US Department of Health and Human Services, 84 pp.	Hardin, B.D., Bond, G.P., Sikov, M.R., Andrew, F.D., Beliles, R.P., Niemeier, R.W., 1981. Testing of selected workplace chemicals for teratogenic potential. Scand. J. Work Environ. Health 7:66-75. Sikov, M.R., Cannon, W.C., Carr, D.B., Miller, R.A., Montgomery, L.F., Phelps, D.W. 1981. Teratologic assessment of buthylene oxide, stryene oxide and methyl bromide (Contract-No. 210-78-0025). Cincinnati, Ohio, US Department of Health and Human Services, 84 pp.
引用文献(元文献)	(42) (115)	(42) (115)
備考		

5-10その他関連情報

5-11 ヒト暴露の経験

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
製造／加工／使用情報		
研究デザイン	処理した食餌中に含まれる臭化メチルの代謝中間体に対する許容度はEPAが設定した。	Tolerance levels for the metabolite of methyl bromide in treated food have been established by the EPA.
仮説検証		
データ収集方法		
被験者の説明		
暴露期間		
測定又は評価曝露データ		
結果		
統計的結果		
発病頻度		
相関		
分布		
研究提供者等		
注釈	ヒトへのばく露経路は、経口、経皮、吸入である。(詳細英文参照)	The potential routes of human exposure to methyl bromide are oral, dermal, or inhalation. Extensive studies have shown that residues of methyl bromide found in crops grown on fumigated soils are virtually non-detectable. In addition, concentrations in commodities treated post-harvest, decrease rapidly after required aeration and are non-detectable after relatively short period of time. Humans are not exposed to unsafe levels of methyl bromide's metabolite in food. There is no significant likelihood of oral exposure through consumption of treated food. People living in close proximity to fumigated fields, greenhouses or structures are protected from the risk of significant inhalation exposure through special notice requirements, safety precautions, and the use of buffer zones. The potential for dermal or inhalation exposure is highest for applicators, and other personnel who are involved in manufacturers, filling, handling or application of methyl bromide. Strictly applied safety measure in manufacturing and filling installations limit the potential risk of exposure to plant personnel. In addition, fumigator/applicators are protected from dermal and inhalation exposures through adherence to strict safety procedures and the use of protective equipment
結論		
結論		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典		
引用文献(元文献)		
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
製造／加工／使用情報	対象: 薫蒸作業員 ばく露ルート: 吸入 ばく露期間: 慢性 ばく露後の観察期間: データなし ばく露頻度: 6 時間/日, 5 日間/週 用量: 1-5 ppm (推測値) 対照群: あり(無処置対照) GLP: データなし	Subjects: Fumigation workers Route of Administration: Inhalation Exposure period: Chronic Post exposure observation period: no data Frequency of treatment: 6 hours/day, 5 days/week Doses: 1-5 ppm assumed Control group: yes, concurrent no treatment GLP: no data
研究デザイン		
仮説検証		
データ収集方法	113人の建物の薫蒸作業員へ試験をした。 臭化メチルへのばく露(平均1.20年間) フッ化スルフルルへのばく露(平均2.85年間) (詳細は英文参照)	Study was conducted with 123 structural fumigation workers predominantly exposed either to methyl bromide or sulfuryl fluoride for an average of 1.20 and 2.85 years, respectively. A reference cohort of 120 workers had no pesticide exposure. All participants were evaluated for 1) nerve conduction velocity and amplitude, 2) vibrotactile threshold, 3) neurobehavioral parameters (hand-eye coordination, reaction time, continuous performance, symbol digit, pattern memory, serial digit learning, and mood scales), 4) visual acuity, 5) olfactory function, and 6) renal function.
被験者の説明		
暴露期間		
測定又は評価曝露データ		
結果		
統計的結果		
発病頻度		
相関		
分布		
研究提供者等		
注釈	薫蒸作業者は、ばく露されない人より器用さ試験に劣り、手根管症候群の発生率が増加した。 (詳細は英文参照)	All fumigation workers performed less well in dexterity tests and had a higher incidence of tunnel carpal syndrome than non-exposed subjects. Although sulfuryl fluoride workers showed CNS effects including pattern memory deficits and olfactory thresholds, methyl bromide workers did not. Other parameters evaluated in this study were not affected by exposure to fumigants. The authors ascribed decrements in dexterity and the increased incidence of carpal tunnel syndrome to ergonomic stresses rather than to exposure to fumigants.
結論		
結論		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Calvert, G.M., Mueller, C.A., Fajen, J.M., Chrislip, D.W., Russo, J., Briggie, T., Fleming, L.E., Suruda, A.J., Steenland, K., 1998. ealth effects associated with sulfuryl fluoride and methyl bromide exposure among structural fumigation workers. Am. J. Public Health, 88(12):1774-1780.	Calvert, G.M., Mueller, C.A., Fajen, J.M., Chrislip, D.W., Russo, J., Briggie, T., Fleming, L.E., Suruda, A.J., Steenland, K., 1998. ealth effects associated with sulfuryl fluoride and methyl bromide exposure among structural fumigation workers. Am. J. Public Health, 88(12):1774-1780.
引用文献(元文献)	(17)	(17)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
製造／加工／使用情報	対象: 薫蒸作業員(温室薫蒸剤) ばく露ルート: 吸入 ばく露期間: 慢性 ばく露後の観察期間: データなし ばく露頻度: 6 時間/日, 5日間/週 用量: 1-5 ppm (推測値) 対照群: あり(無処置対照) GLP: データなし	Subjects: Fumigation workers (greenhouse fumigators) Route of Administration: Inhalation Exposure period: Chronic Post exposure observation period: no data Frequency of treatment: 6 hours/day, 5 days/week Doses: 1-5 ppm assumed Control group: yes, concurrent no treatment GLP: no data
研究デザイン		
仮説検証		
データ収集方法	アンケート、EEG、一般的な医学的・神経額の評価	Results were gathered by questionnaire (symptom incidence), by EEG, and by a general medical and neurological evaluation
被験者の説明		
暴露期間		
測定又は評価曝露データ		
結果		
統計的結果		
発病頻度		
相関		
分布		
研究提供者等		

注釈	影響を受けなかった作業員と比較すると、影響を受けた作業員の血液中臭素濃度は上昇した。(10.9 vs 8.2 mg Br/l)。 (詳細は英文参照)	EEGs were normal except that some workers showed a slight diffuse increase in beta and theta activity. Affected workers, when compared to unaffected workers, showed statistically elevated bromide levels in blood (10.9 vs 8.2 mg Br/l).
結論		
結論		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	T.N.O., 1987. Chronic (29 month) inhalation toxicity and carcinogenic study of methyl bromide in rats, Report V86.469/221044.	T.N.O., 1987. Chronic (29 month) inhalation toxicity and carcinogenic study of methyl bromide in rats, Report V86.469/221044.
引用文献(元文献)	(135)	(135)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
製造／加工／使用情報	対象: 薫蒸作業員(土壌と建物の薫蒸剤) ばく露ルート: 吸入 ばく露期間: 慢性 ばく露後の観察期間: データなし ばく露頻度: 6 時間/日, 5日間/週 用量: 1-5 ppm (推測値) 対照群: あり(無処置対照) GLP: データなし	Subjects: Fumigation workers (soil and structural fumigators) Route of Administration: Inhalation Exposure period: Chronic Post exposure observation period: no data Frequency of treatment: 6 hours/day, 5 days/week Doses: 1-5 ppm assumed Control group: yes, concurrent no treatment GLP: no data
研究デザイン		
仮説検証		
データ収集方法		
被験者の説明		
暴露期間		
測定又は評価曝露データ	(英文参照)	Four groups evaluated included 1) structural fumigators using methyl bromide >80% of the time and soil fumigators using a methyl bromide/chloropicrin combination (total n=32), 2) structural fumigators using sulfuryl fluoride >80% of the time (n=24), 3) fumigators using both methyl bromide and sulfuryl fluoride (n=18), and 4) a control group of workers in the fumigation industry but not applying fumigants (n=29). Exposed workers had been fumigators for more than one year and engaged in fumigation operations within 50 days of neurological evaluation.
結果		
統計的結果		
発病頻度		
相関		
分布		
研究提供者等		
注釈	ブロモメチルにばく露された人は、認知機能、反射機能、知覚機能、視覚機能に劣る。(詳細英文参照)	Methyl bromide cohorts performed less well in tests of cognitive function, reflexes, and sensory and visual performance. Results were confounded by co-exposures to other fumigants or other chemicals, poor age-matched controls, lack of knowledge of exposure levels, industrial hygiene practices, medication use, alcohol consumption, educational background, ethnicity, and other factors. Particularly regarding ethnicity, the Wechsler Memory Scale test was administered in English even though the methyl bromide cohorts were comprised of a higher proportion of Mexican Americans than the control cohort.
結論		
結論		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	Anger, W.K., Moody, L., Burg, J., Brightwell, W.S., Taylor, B.J., Russo, J.M., Dickerson, N. Setzer, J.W., Johnson, B.L., Hicks, K., 1986. Neurobehavioral evaluation of soil and structural fumigators using methyl bromide and sulfuryl fluoride. Neurotoxicology 7:137-156.	Anger, W.K., Moody, L., Burg, J., Brightwell, W.S., Taylor, B.J., Russo, J.M., Dickerson, N. Setzer, J.W., Johnson, B.L., Hicks, K., 1986. Neurobehavioral evaluation of soil and structural fumigators using methyl bromide and sulfuryl fluoride. Neurotoxicology 7:137-156.
引用文献(元文献)	(4)	(4)
備考		

試験物質名	ブロモメタン	bromomethane
CAS番号	74-83-9	74-83-9
純度等		
注釈		
製造／加工／使用情報	<p>対象: 臭化メチル製造作業員 ばく露ルート: 吸入 ばく露期間: 慢性 ばく露後の観察期間: データなし ばく露頻度: 6 時間/日, 5日間/週 用量: <4 mg/m³ (臨時のばく露 <1 ppm ~ 20 mg/m³ (5-6 ppm)) 対照群: あり(無処置対照) GLP: データなし</p>	<p>Subjects: Methyl bromide manufacturing workers Route of Administration: Inhalation Exposure period: Chronic Post exposure observation period: no data Frequency of treatment: 6 hours/day, 5 days/week Doses: Less than 4 mg/m³ (<1 ppm) with occasional excursions up to 20 mg/m³ (5-6 ppm) Control group: yes, concurrent no treatment GLP: no data</p>
研究デザイン		
仮説検証		
データ収集方法	<p>臭化メチル製造工場において1～25年間勤務した75人の男性作業員へ試験した。 6ヶ月ごとに臭化メチルのモニタリングを実施した。</p>	<p>Workers were comprised of 75 males employed from 1 to 25 years in a methyl bromide manufacturing plant. The incidence of acute and general symptoms were gathered by means of a questionnaire and compared to a group of non-exposed control (railway) workers. Methyl bromide were monitored every six months.</p>
被験者の説明		
暴露期間		
測定又は評価曝露データ		
結果		
統計的結果		
発病頻度		
相関		
分布		
研究提供者等		
注釈	<p>対照群と比較して、製造工場作業員における症状発生率は高かった。 尿の臭素濃度と症状発生には相関がなかった。</p>	<p>The incidence of symptoms was greater in methyl bromide workers compared to controls. Bromide ion concentration in urine did not correlate with symptom incidence.</p>
結論		
結論		
注釈		
信頼性	選択してください	選択してください
信頼性の判断根拠		
出典	<p>Kishi, R., Itoh, I., Ishizu, S., Harabuchi, I., Miyake, H., 1991. Symptoms among workers with long-term exposure to methyl bromide. An epidemiological study. Jpn. J. Ind. Health, 33:241-250.</p>	<p>Kishi, R., Itoh, I., Ishizu, S., Harabuchi, I., Miyake, H., 1991. Symptoms among workers with long-term exposure to methyl bromide. An epidemiological study. Jpn. J. Ind. Health, 33:241-250.</p>
引用文献(元文献)	(71)	(71)
備考		

6 参考文献(以下に欄を追加の上、一文献について一行にて一覧を記載)

文献番号(半角数字: 自動的に半角になります)	詳細(OECD方式での記入をお願いします。下の記入例参照。)	日本語の場合、以下の欄をお願いします。
1	Alexeeff, G.V., Kilgore, W.W., Munoz, P., Watt, D. 1985. Determination of acute toxic effects in mice following exposure to methyl bromide. J. Toxicol. Environ. Health, 15: 109-123.	
2	American Biogenics Corporation, 1986. Two-generation reproduction study in albino rats with methyl bromide - results of both generations (Study No. 4500-1525) (Unpublished final report).	
3	Andersen, M., Gargas, M., Jones, R., Jenkins, L. 1980. Determination of the kinetic constants for metabolism of inhaled toxicants in vivo using gas uptake measurements. Toxicol. Appl. Pharmacol., 54: 100-116	
4	Anger, W.K., Moody, L., Burg, J., Brightwell, W.S., Taylor, B.J., Russo, J.M., Dickerson, N. Setzer, J.W., Johnson, B.L., Hicks, K., 1986. Neurobehavioral evaluation of soil and structural fumigants using methyl bromide and sulfuryl fluoride. Neurotoxicology 7:137-156.	
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6	Atochem, 1987. Fumyl-o-gas. Fiche de données de sécurité. Paris, Groupe Elf Aquitaine, 4 pp.	
7	Bakhishev, G.N., 1973. Relative toxicity of aliphatic halohydrocarbons to rats. Farmakol. Toksikol., 8:140-142 (in Russian).	
8	Balander, P.A., Polyak, M.G., 1962. Toxicological characteristics of methyl bromide. J. Gig. I. Tokskol. 60:412-419.	
9	Baumann, H., Heumann K.G., 1987. Analysis of organobromine compounds and hydrogen bromide in motor car exhaust gases with a GC/microwave plasma system. Fresenius Z. Anal. Chem., 327: 186-192.	
10	Bell, C.H., 1988. Minimum concentration levels of methyl bromide required for full efficacy against seven species of stored-product beetle at two temperatures.	
11	Bentley, K.S., (1994). Detection of single strand breaks in rat testicular DNA by alkaline elution following in vivo inhalation exposure to methyl bromide. Unpublished report from E.I. DuPont Haskell Laboratories Project no. 9714-001: MBIP/21/ALK/HASK.999.	
12	Bolsa Research, 1993. Photohydrolysis of methyl bromide. Report No. BR 289.1:93. Sponsor: CMA Methyl Bromide Industry Panel.	
13	Bond, J.A., Dutcher, J.S., Medinsky, M.A., Henderson, R.F., Birnbaum, L.S. 1985. Disposition of ¹⁴ C methyl bromide in rats after inhalation. Toxicol. Appl. Pharmacol., 78: 259-267	
14	Boorman, G.A., Hong, H.L., Jamieson, C.W., Yoshitomi, K., Maronpot, R.R., 1986. Regression of methyl bromide induced forestomach lesions in the rat. Toxicol. Appl. Pharmacol., 86: 131-139.	
15	Breslin, W.J., Zablony, C.L., Bradley, G.F., Lomax, L.G., 1990b. Methyl bromide inhalation teratology study in New Zealand white rabbits. Midland, Michigan, The Dow Chemical Company (Unpublished final report).	
16	Brown, A.L., Burau, R.G., Meyer, R.D., Raski, D.J., Wilhelm, S., Quick, J., 1979. Plant uptake of bromide following soil fumigation with methyl bromide. Calif. Agric., 33: 11-13.	
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