

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
 Product name : B/N Surrogate Mix 2
 Product code : AL0-101567
 Product group : Trade product

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Laboratory Use
 Industrial/Professional use spec : Industrial
 For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Phenova
 6390 Joyce Dr. Suite 100
 80403 Golden, CO - United States
 T 1-866-942-2978 - F 1-866-283-0269
info@phenova.com - www.phenova.com

1.4. Emergency telephone number

Emergency number : ChemTel Assistance (US/Canada) 1-800-255-3924
 ChemTel Assistance (International) +1 813-248-0585

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Carc. 2 H351
 Aquatic Chronic 3 H412

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Carc.Cat.3; R40
 Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS08

Signal word (CLP) : Warning
 Hazardous ingredients : Methylene Chloride
 Hazard statements (CLP) : H351 - Suspected of causing cancer
 H412 - Harmful to aquatic life with long lasting effects
 Precautionary statements (CLP) : P271 - Use only outdoors or in a well-ventilated area
 P233 - Keep container tightly closed
 P273 - Avoid release to the environment
 P280 - Wear protective gloves/protective clothing/eye protection/face protection
 P308+P313 - IF exposed or concerned: Get medical advice/attention
 P403+P233 - Store in a well-ventilated place. Keep container tightly closed

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No labeling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Methylene Chloride (Component)	(CAS No) 75-09-2 (EC no) 200-838-9 (EC index no) 602-004-00-3	99.2	Carc. 2, H351
nitrobenzene-D5 (Component)	(CAS No) 4165-60-0 (EC no) 224-014-3 (EC index no) 609-003-00-7	0.2	Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Dermal), H311 Carc. 2, H351 Repr. 1B, H360F STOT RE 1, H372 Aquatic Chronic 3, H412
2-Fluorobiphenyl (Component)	(CAS No) 321-60-8 (EC no) 206-290-7	0.2	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1,2-dichlorobenzene-d4 (Component)	(CAS No) 2199-69-1 (EC no) 218-606-0 (EC index no) 602-034-00-7	0.2	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.
- First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.
- First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
- First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
- Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.

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Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up in absorbent material. Collect spillage.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Hygiene measures : Gently wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container closed when not in use. Keep container tightly closed and in a well-ventilated place. Keep away from any flames or sparking source.

Incompatible materials : Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

2-Fluorobiphenyl (321-60-8)		
USA OSHA	OSHA PEL (TWA) (mg/m ³)	450 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	75 ppm
USA OSHA	OSHA PEL (STEL) (mg/m ³)	675 mg/m ³
USA OSHA	OSHA PEL (STEL) (ppm)	110 ppm

8.2. Exposure controls

Appropriate engineering controls : Either local exhaust or general room ventilation is usually required.

Personal protective equipment : Avoid all unnecessary exposure. Gloves. Protective clothing. Protective goggles. Safety glasses.



Hand protection : Wear chemically resistant protective gloves. Wear suitable gloves resistant to chemical penetration.

Eye protection : Chemical goggles or safety glasses. Safety glasses.

Skin and body protection : Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact.

Respiratory protection : Wear appropriate mask.

Other information : Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Color : Colorless.

Odor : characteristic.

pH : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

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Flammability (solid, gas)	: Non flammable
Relative density	: No data available
Solubility	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

nitrobenzene-D5 (4165-60-0)	
LD50 oral rat	855 mg/kg body weight (Rat; Experimental value)
LD50 dermal rabbit	760 mg/kg body weight (Rabbit; Experimental value)
ATE CLP (oral)	855.000 mg/kg body weight
ATE CLP (dermal)	760.000 mg/kg body weight
2-Fluorobiphenyl (321-60-8)	
ATE CLP (oral)	500.000 mg/kg body weight
1,2-dichlorobenzene-d4 (2199-69-1)	
LD50 oral rat	> 500 mg/kg (Rat)
LD50 dermal rabbit	> 10000 mg/kg (Rabbit)
ATE CLP (oral)	500.000 mg/kg body weight
Methylene Chloride (75-09-2)	
LD50 oral rat	> 2000 mg/kg (Rat; Literature study)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit; Literature study)

Skin corrosion/irritation	: Not classified Based on available data, the classification criteria are not met
Serious eye damage/irritation	: Not classified Based on available data, the classification criteria are not met
Respiratory or skin sensitization	: Not classified Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified Based on available data, the classification criteria are not met
Carcinogenicity	: Suspected of causing cancer. May cause cancer
Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (repeated exposure)	: Not classified Based on available data, the classification criteria are not met

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Aspiration hazard	: Not classified Based on available data, the classification criteria are not met
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Harmful to aquatic life with long lasting effects.

nitrobenzene-D5 (4165-60-0)	
LC50 fish 2	92 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Brachydanio rerio; Flow-through system; Fresh water; Experimental value)
1,2-dichlorobenzene-d4 (2199-69-1)	
LC50 fish 1	1.58 mg/l (LC50; 96 h)
EC50 other aquatic organisms 1	13.5 mg/l (48 h; Scenedesmus subspicatus; Non deuterium form)
EC50 Daphnia 2	0.74 mg/l (EC50; 48 h)
Methylene Chloride (75-09-2)	
LC50 fish 1	193 mg/l (LC50; 96 h; Pimephales promelas)
EC50 Daphnia 1	168.2 mg/l (EC50; 48 h)

12.2. Persistence and degradability

B/N Surrogate Mix 2	
Persistence and degradability	May cause long-term adverse effects in the environment.
nitrobenzene-D5 (4165-60-0)	
Persistence and degradability	Not readily biodegradable in water. Biodegradable in the soil. Low potential for adsorption in soil.
Biochemical oxygen demand (BOD)	0 g O ₂ /g substance
ThOD	1.95 g O ₂ /g substance
BOD (% of ThOD)	0
1,2-dichlorobenzene-d4 (2199-69-1)	
Persistence and degradability	Not readily biodegradable in water. Forming sediments in water. Non degradable in the soil. Adsorbs into the soil.
BOD (% of ThOD)	0
Methylene Chloride (75-09-2)	
Persistence and degradability	Not readily biodegradable in water. Biodegradable in the soil.

12.3. Bioaccumulative potential

B/N Surrogate Mix 2	
Bioaccumulative potential	Not established.
nitrobenzene-D5 (4165-60-0)	
BCF fish 1	15 (BCF; 672 h; Pimephales promelas)
BCF fish 2	1.6 - 7.7 (BCF; OECD 305: Bioconcentration: Flow-Through Fish Test; 42 days; Cyprinus carpio; Flow-through system; Fresh water; Experimental value; Non deuterium form)
BCF other aquatic organisms 1	24 (BCF)
Log Pow	1.85 (Calculated; 1.86; Experimental value; EU Method A.8: Partition Coefficient)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
1,2-dichlorobenzene-d4 (2199-69-1)	
BCF fish 1	90 - 260 (BCF)
BCF fish 2	270 - 560 (BCF)
BCF other aquatic organisms 1	14791 (BCF)
BCF other aquatic organisms 2	28840 (BCF)
Log Pow	3.38
Bioaccumulative potential	Muta. Cat. 1; R46.
Methylene Chloride (75-09-2)	
BCF fish 1	2 - 40 (BCF)
Log Pow	1.25 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

nitrobenzene-D5 (4165-60-0)	
Log Koc	Koc,Other; 118; Calculated value; log Koc; Other; 2.07; Calculated value

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Methylene Chloride (75-09-2)	
Surface tension	0.028 N/m (20 °C)
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Additional information : Avoid release to the environment

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 2810

UN-No.(IATA) : 2810

14.2. UN proper shipping name

Proper Shipping Name (ADR) : TOXIC LIQUID, ORGANIC, N.O.S.

Proper Shipping Name (IATA) : TOXIC LIQUID, ORGANIC, N.O.S.

Transport document description (ADR) : UN 2810 TOXIC LIQUID, ORGANIC, N.O.S. (TOXIC LIQUID, ORGANIC, N.O.S.), 6.1, III, (E)

14.3. Packing group

Class (ADR) : 6.1

Classification code (ADR) : T1

Class (IATA) : 6.1

Hazard labels (ADR) : 6.1



Hazard labels (IATA) : 6.1



14.4. Packing group

Packing group (ADR) : III

Packing group (IATA) : III

14.5. Environmental hazards

Other information : No supplementary information available.

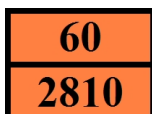
14.6. Special precautions for user

14.6.1. Overland transport

Hazard identification number (Kemler No.) : 60

Classification code (ADR) : T1

Orange plates :



Special provision (ADR) : 274, 614

Transport category (ADR) : 2

Tunnel restriction code (ADR) : E

Limited quantities (ADR) : 5I

Excepted quantities (ADR) : E1

14.6.2. Transport by sea

No additional information available

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14.6.3. Air transport

CAO packing instructions (IATA)	: 663
CAO max net quantity (IATA)	: 220L
PCA packing instructions (IATA)	: 655
PCA Limited quantities (IATA)	: Y642
PCA limited quantity max net quantity (IATA)	: 2L
PCA max net quantity (IATA)	: 60L
PCA Excepted quantities (IATA)	: E1
Special provision (IATA)	: A137
ERG code (IATA)	: 6L

14.6.4. Inland waterway transport

Carriage prohibited (ADN) : No

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions
Contains no REACH candidate substance
Contains no REACH Annex XIV substances.

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Data sources	: REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
Other information	: None.

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