

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

#### 1.1. Product identifier

Product form : Mixture  
Product name : SV BNA Surrogate Mix  
Product code : AL0-101252  
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  
Use of the substance/mixture : Certified reference material for laboratory 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](mailto:info@phenova.com) - [www.phenova.com](http://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]

Flam. Liq. 3 H226  
Carc. 2 H351  
Repr. 1B H360  
Aquatic Chronic 3 H412

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

Carc.Cat.3; R40  
R10

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) :



GHS02

GHS08

Signal word (CLP) : Danger  
Hazardous ingredients : nitrobenzene-D5, Methylene Chloride  
Hazard statements (CLP) : H226 - Flammable liquid and vapor  
H351 - Suspected of causing cancer  
H360 - May damage fertility or the unborn child  
H412 - Harmful to aquatic life with long lasting effects

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according to Regulation (EC) No. 453/2010

Precautionary statements (CLP) : P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
P233 - Keep container tightly closed  
P240 - Ground/bond container and receiving equipment  
P241 - Use explosion-proof electrical/ventilating/lighting/... equipment  
P273 - Avoid release to the environment  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P308+P313 - IF exposed or concerned: Get medical advice/attention  
P370+P378 - In case of fire: Use ... to extinguish  
P403+P235 - Store in a well-ventilated place. Keep cool  
P405 - Store locked up  
P501 - Dispose of contents/container to ...

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	97.6	Carc. 2, H351
nitrobenzene-D5 (Component)	(CAS No) 4165-60-0 (EC no) 224-014-3 (EC index no) 609-003-00-7	0.4	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	0.4	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
Phenol (Component)	(CAS No) 13127-88-3 (EC no) 236-063-8 (EC index no) 604-001-00-2	0.4	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Skin Corr. 1B, H314 Muta. 2, H341 STOT RE 2, H373 Aquatic Chronic 2, H411
2,4,6-tribromophenol (Component)	(CAS No) 118-79-6 (EC no) 204-278-6	0.4	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Chronic 2, H411
Name	Product identifier	Specific concentration limits	
Phenol (Component)	(CAS No) 13127-88-3 (EC no) 236-063-8 (EC index no) 604-001-00-2	(1 =< C < 3) Eye Irrit. 2, H319 (1 =< C < 3) Skin Irrit. 2, H315 (C >= 3) Skin Corr. 1B, H314	

## 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/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

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### 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 : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapor.

Explosion hazard : May form flammable/explosive vapor-air mixture.

### 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.

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 : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

### 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

Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.

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. No open flames. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. 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

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.

Storage conditions : Keep container tightly closed. Keep container tightly closed and in a well-ventilated place. Keep away from any flames or sparking source.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight. Heat sources.

### 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 <sup>3</sup> )	450 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (ppm)	75 ppm
USA OSHA	OSHA PEL (STEL) (mg/m <sup>3</sup> )	675 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (STEL) (ppm)	110 ppm

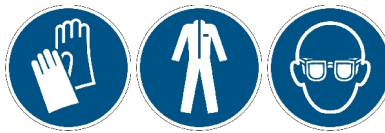
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### 8.2. Exposure controls

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  
Flammability (solid, gas) : Flammable liquid and vapor  
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. Flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

### 10.3. Possibility of hazardous reactions

Not established.

### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks.

### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide. May release flammable gases.

## 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)

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<b>nitrobenzene-D5 (4165-60-0)</b>	
ATE CLP (oral)	855.000 mg/kg body weight
ATE CLP (dermal)	760.000 mg/kg body weight
<b>2-Fluorobiphenyl (321-60-8)</b>	
ATE CLP (oral)	500.000 mg/kg body weight
<b>Phenol (13127-88-3)</b>	
ATE CLP (oral)	100.000 mg/kg body weight
ATE CLP (dermal)	300.000 mg/kg body weight
<b>2,4,6-tribromophenol (118-79-6)</b>	
LD50 oral rat	2000 mg/kg (Rat)
LD50 dermal rabbit	> 8000 mg/kg (Rabbit)
ATE CLP (oral)	2000.000 mg/kg body weight
<b>Methylene Chloride (75-09-2)</b>	
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	: May damage fertility or the unborn child. 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
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.

<b>nitrobenzene-D5 (4165-60-0)</b>	
LC50 fish 1	4.3 mg/l (48 h; <i>Oryzias latipes</i> ; Non deuterium form)
LC50 other aquatic organisms 1	10 - 100 ppm (96 h; Non deuterium form)
EC50 Daphnia 1	4 mg/l (24 h; <i>Daphnia magna</i> ; Non deuterium form)
EC50 other aquatic organisms 1	10.3 mg/l (96 h; <i>Skeletonema</i> ; Non deuterium form)
LC50 fish 2	92 mg/l (96 h; <i>Brachydanio rerio</i> ; Non deuterium form)
EC50 Daphnia 2	35 mg/l (48 h; <i>Daphnia magna</i> ; Non deuterium form)
TLM fish 1	20 - 24,6 h; Pisces; Non deuterium form
TLM fish 2	90 - 100,6 h; Pisces; Non deuterium form
Threshold limit other aquatic organisms 1	10 - 100,96 h; Non deuterium form
Threshold limit algae 1	33 mg/l (168 h; <i>Scenedesmus quadricauda</i> ; Non deuterium form)
Threshold limit algae 2	1.9 mg/l (72 h; <i>Microcystis aeruginosa</i> ; Non deuterium form)
<b>Phenol (13127-88-3)</b>	
LC50 fish 1	27.8 mg/l (96 h; <i>Brachydanio rerio</i> ; Non deuterium form)
EC50 Daphnia 1	18 - 36 mg/l (48 h; <i>Daphnia pulex</i> ; Non deuterium form)
LC50 fish 2	9.1 - 12.2 mg/l (96 h; <i>Salmo gairdneri</i> ( <i>Oncorhynchus mykiss</i> ); Non deuterium form)
EC50 Daphnia 2	6.6 mg/l (48 h; <i>Daphnia magna</i> ; Non deuterium form)
TLM fish 1	39.2 mg/l (96 h; <i>Poecilia reticulata</i> ; Non deuterium form)

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<b>Phenol (13127-88-3)</b>	
TLM fish 2	5.7 mg/l (96 h; <i>Lepomis macrochirus</i> ; Non deuterium form)
Threshold limit other aquatic organisms 1	64 mg/l ( <i>Pseudomonas putida</i> ; Non deuterium form)
Threshold limit algae 1	7.5 mg/l (192 h; <i>Scenedesmus quadricauda</i> ; Non deuterium form)
Threshold limit algae 2	4.6 mg/l (192 h; <i>Microcystis aeruginosa</i> ; Non deuterium form)
<b>2,4,6-tribromophenol (118-79-6)</b>	
LC50 fish 1	6.5 - 6.8 mg/l (96 h; <i>Pimephales promelas</i> )
<b>Methylene Chloride (75-09-2)</b>	
LC50 fish 1	193 mg/l (96 h; <i>Pimephales promelas</i> ; Flow-through system)
EC50 Daphnia 1	168.2 mg/l (48 h; <i>Daphnia magna</i> )
LC50 fish 2	220 mg/l (96 h; <i>Lepomis macrochirus</i> ; Flow-through system)
Threshold limit algae 1	1450 mg/l (192 h; <i>Scenedesmus quadricauda</i> ; Cell numbers)
Threshold limit algae 2	550 mg/l (192 h; <i>Microcystis aeruginosa</i> )
<b>12.2. Persistence and degradability</b>	
<b>SV BNA Surrogate Mix</b>	
Persistence and degradability	May cause long-term adverse effects in the environment.
<b>nitrobenzene-D5 (4165-60-0)</b>	
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 <sub>2</sub> /g substance
ThOD	1.95 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0 % ThOD
<b>Phenol (13127-88-3)</b>	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Inhibits biodegradation processes in the soil.
Biochemical oxygen demand (BOD)	1.68 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	2.28 g O <sub>2</sub> /g substance
ThOD	2.38 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0.71 % ThOD
<b>2,4,6-tribromophenol (118-79-6)</b>	
Persistence and degradability	Not readily biodegradable in water. Biodegradability in soil: no data available.
<b>Methylene Chloride (75-09-2)</b>	
Persistence and degradability	Not readily biodegradable in water. Biodegradable in the soil.
<b>12.3. Bioaccumulative potential</b>	
<b>SV BNA Surrogate Mix</b>	
Bioaccumulative potential	Not established.
<b>nitrobenzene-D5 (4165-60-0)</b>	
BCF fish 1	15 (672 h; <i>Pimephales promelas</i> ; Non deuterium form)
BCF fish 2	1.6 - 7.7 (42 days; <i>Cyprinus carpio</i> ; Non deuterium form)
BCF other aquatic organisms 1	24 ( <i>Chlorella</i> sp.; Non deuterium form)
Log Pow	1.85 (Calculated; 1.86; Experimental value; EU Method A.8: Partition Coefficient)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
<b>Phenol (13127-88-3)</b>	
BCF fish 1	20 ( <i>Leuciscus idus</i> ; Non deuterium form)
BCF fish 2	1276 - 1496 ( <i>Pimephales promelas</i> ; Non deuterium form)
BCF other aquatic organisms 1	277 ( <i>Daphnia magna</i> ; Non deuterium form)
BCF other aquatic organisms 2	3.5 - 16 ( <i>Scenedesmus quadricauda</i> ; Non deuterium form)
Log Pow	1.46 (Experimental value)
Bioaccumulative potential	Potential for bioaccumulation (500 ≤ BCF ≤ 5000).
<b>2,4,6-tribromophenol (118-79-6)</b>	
Log Pow	4.02 (QSAR)
Bioaccumulative potential	No bioaccumulation data available.
<b>Methylene Chloride (75-09-2)</b>	
BCF fish 1	2 - 40 ( <i>Cyprinus carpio</i> ; Test duration: 6 weeks)
Log Pow	1.25 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

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### 12.4. Mobility in soil

#### 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.  
Additional information : Handle empty containers with care because residual vapors are flammable.  
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.  
Proper Shipping Name (IMDG) : TOXIC LIQUID, ORGANIC, N.O.S.  
Proper Shipping Name (ADN) : TOXIC LIQUID, ORGANIC, N.O.S.  
Transport document description (ADR) : UN 2810 TOXIC LIQUID, ORGANIC, N.O.S. (dichloromethane(75-09-2)), 6.1, III, (D/E)

### 14.3. Packing group

Class (ADR) : 6.1  
Classification code (ADR) : T1  
Class (IATA) : 6.1  
Class (IMDG) : 6.1  
Class (ADN) : 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

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Orange plates



Special provision (ADR) : 274, 614  
Transport category (ADR) : 2  
Tunnel restriction code (ADR) : D/E  
Limited quantities (ADR) : 100ml  
Excepted quantities (ADR) : E4

### 14.6.2. Transport by sea

No additional information available

### 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.

PHV SDS EU

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