BASE NEUTRALS MIXTURE - 4.3

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 23/09/2014 Revision date: : Version: 1.0

ES-2002

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

1.1. Product identifier

Product form : Mixtures

Product name. : BASE NEUTRALS MIXTURE - 4.3

Product code : ES-2002

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

1.2.1. Relevant identified uses

Industrial/Professional use spec : 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

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-202-483-7616 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flam. Liq. 2	H225
Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Dermal)	H312
Skin Irrit. 2	H315
Eye Irrit. 2	H319
Muta. 1B	H340
Carc. 1A	H350
Asp. Tox. 1	H304
Aquatic Acute 1	H400
Aquatic Chronic 3	H412

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC

Carc.Cat.1; R45
Carc.Cat.1; R49
Muta.Cat.1; R46
F; R11
Xn; R20/21/22
Xn; R65
Xi; R36/38
R52/53

Full text of R-phrases: see section 16

Classification (GHS-US)

Flam. Liq. 2	H225
Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Dermal)	H312
Skin Irrit. 2	H315
Eye Irrit. 2A	H319
Muta. 1B	H340

Carc. 1A	H350
Asp. Tox. 1	H304
Aquatic Acute 1	H400
Aquatic Chronic 3	H412

Adverse physicochemical, human health and environmental effects

Blood, Eyes, Female reproductive system, Bone marrow.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS02 GHS07 GHS08 GHS09

Signal word (CLP) : Danger

Hazardous ingredients : HEXACHLOROBENZENE (13C6, 99%), 4-BROMOPHENYL PHENYL ETHER (PHENYL-D5, 98%), 4-CHLOROPHENYL PHENYL ETHER (PHENYL-D5, 98%), BENZENE-D6 (D, 99.5%), ISOPHORONE (3-METHYL-D3;2,4,4,6,6-D5,98%)

Hazard statements (CLP) : H225 - Highly flammable liquid and vapor
H302+H312 - Harmful if swallowed or in contact with skin
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H340 - May cause genetic defects
H350 - May cause cancer
H400 - Very toxic to aquatic life
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (CLP) : 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, lighting, ventilating equipment
P264 - Wash Both hands thoroughly after handling
P270 - Do no eat, drink or smoke when using this product
P273 - Avoid release to the environment
P280 - Wear eye protection, face protection, protective clothing, protective gloves

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS02 GHS07 GHS08 GHS09

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H225 - Highly flammable liquid and vapor
H302+H312 - Harmful if swallowed or in contact with skin
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H340 - May cause genetic defects (Dermal, Inhalation, oral)
H350 - May cause cancer (Dermal, Inhalation, oral)
H400 - Very toxic to aquatic life
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (GHS-US) : 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, open flames, sparks. - No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P264 - Wash Both hands thoroughly after handling
P270 - Do no eat, drink or smoke when using this product
P273 - Avoid release to the environment

P280 - Wear eye protection, face protection, protective clothing, protective gloves
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - IF exposed or concerned: Get medical advice/attention
P312 - Call a POISON CENTER/doctor/physician if you feel unwell
P330 - If swallowed, rinse mouth
P331 - If swallowed, do NOT induce vomiting
P332+P313 - If skin irritation occurs: Get medical advice/attention
P337+P313 - If eye irritation persists: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse
P362+P364 - Take off contaminated clothing and wash it before reuse
P370+P378 - In case of fire: Use Alcohol resistant foam., Carbon dioxide., Dry chemical., Water spray for extinction
P391 - Collect spillage
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container to Comply with applicable regulations.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Directive 67/548/EEC
BENZENE-D6 (D, 99.5%)	(CAS No) 1076-43-3 (EC no) 200-753-7 (EC index no) 601-020-00-8	95	F; R11 Xn; R22 Xi; R36/38 Carc.Cat.1; R45 Muta.Cat.1; R46 Carc.Cat.2; R49 N; R51 Xn; R65
HEXACHLOROBENZENE (13C6, 99%)	(CAS No) 118-74-1 (Unlabeled) (EC no) 204-273-9 (EC index no) 602-065-00-6	0.5	Xn; R20 N; R51/53 R10
2-CHLORONAPHTHALENE (D7, 98%)	(CAS No) 91-58-7 (Unlabeled) (EC no) 202-079-9	0.5	Xn; R22 N; R51
4-BROMOPHENYL PHENYL ETHER (PHENYL-D5, 98%)	(CAS No) 93951-83-8 (EC no) 202-952-4	0.5	Carc.Cat.1; R45 Carc.Cat.1; R49 Xn; R22 Xi; R41 Xi; R37 Xi; R38 N; R51/53
4-CHLOROPHENYL PHENYL ETHER (PHENYL-D5, 98%)	(CAS No) 7005-72-3 (unlabeled) (EC no) 230-281-7	0.5	Carc.Cat.1; R45 T+; R26/27/28 N; R50/53 R33
DI-N-BUTYL PHTHALATE (RING-D4, 98%) substance listed as REACH Candidate (Dibutyl phthalate (DBP)) substance listed in REACH Annex XIV (Dibutyl phthalate (DBP))	(CAS No) 93952-11-5 (EC no) 201-557-4 (EC index no) 607-318-00-4	0.5	R33
DIETHYL PHTHALATE (RING-D4, 98%)	(CAS No) 93952-12-6 (EC no) 201-550-6	0.5	R33
DI-N-OCTYL PHTHALATE (RING-D4, 98%)	(CAS No) 27214-90-0 (EC no) 204-214-7	0.5	R33
HEXACHLOROETHANE (1-13C, 99%)	(CAS No) 67-72-1 (unlabeled) (EC no) 200-666-4	0.5	Carc.Cat.3; R40
ISOPHORONE (3-METHYL-D3;2,4,4,6,6-D5,98%)	(CAS No) 78-59-1 (unlabeled) (EC no) 201-126-0 (EC index no) 606-012-00-8	0.5	Carc.Cat.1; R45 T+; R26/27/28 N; R50/53 R33

Name	Product identifier	%	Classification according to Directive 67/548/EEC
1,2,4-TRICHLOROBENZENE (D3, 98%)	(CAS No) 2199-72-6 (EC no) 204-428-0 (EC index no) 602-087-00-6	0.5	Xn; R20 N; R51/53 R10

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
BENZENE-D6 (D, 99.5%)	(CAS No) 1076-43-3 (EC no) 200-753-7 (EC index no) 601-020-00-8	95	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Muta. 1B, H340 Carc. 1A, H350 Asp. Tox. 1, H304
HEXACHLOROBENZENE (13C6, 99%)	(CAS No) 118-74-1 (Unlabeled) (EC no) 204-273-9 (EC index no) 602-065-00-6	0.5	Acute Tox. 4 (Inhalation:dust,mist), H332 Carc. 1A, H350 STOT RE 1, H372 Aquatic Chronic 2, H411
2-CHLORONAPHTHALENE (D7, 98%)	(CAS No) 91-58-7 (Unlabeled) (EC no) 202-079-9	0.5	Not classified
4-BROMOPHENYL PHENYL ETHER (PHENYL-D5, 98%)	(CAS No) 93951-83-8 (EC no) 202-952-4	0.5	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Carc. 1A, H350 Carc. 1A, H350i STOT SE 3, H335 Aquatic Chronic 2, H411
4-CHLOROPHENYL PHENYL ETHER (PHENYL-D5, 98%)	(CAS No) 7005-72-3 (unlabeled) (EC no) 230-281-7	0.5	Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Inhalation:dust,mist), H330 Carc. 1A, H350 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
DI-N-BUTYL PHTHALATE (RING-D4, 98%) substance listed as REACH Candidate (Dibutyl phthalate (DBP)) substance listed in REACH Annex XIV (Dibutyl phthalate (DBP))	(CAS No) 93952-11-5 (EC no) 201-557-4 (EC index no) 607-318-00-4	0.5	Acute Tox. 4 (Inhalation:dust,mist), H332 STOT RE 2, H373 Aquatic Acute 1, H400
DIETHYL PHTHALATE (RING-D4, 98%)	(CAS No) 93952-12-6 (EC no) 201-550-6	0.5	STOT RE 2, H373
DI-N-OCTYL PHTHALATE (RING-D4, 98%)	(CAS No) 27214-90-0 (EC no) 204-214-7	0.5	STOT RE 2, H373
HEXACHLOROETHANE (1-13C, 99%)	(CAS No) 67-72-1 (unlabeled) (EC no) 200-666-4	0.5	Carc. 2, H351 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H336 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
ISOPHORONE (3-METHYL-D3;2,4,4,6,6-D5,98%)	(CAS No) 78-59-1 (unlabeled) (EC no) 201-126-0 (EC index no) 606-012-00-8	0.5	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Carc. 1A, H350 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1,2,4-TRICHLOROBENZENE (D3, 98%)	(CAS No) 2199-72-6 (EC no) 204-428-0 (EC index no) 602-087-00-6	0.5	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Aquatic Chronic 2, H411

Name	Product identifier	%	Classification (GHS-US)
BENZENE-D6 (D, 99.5%)	(CAS No) 1076-43-3	95	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Muta. 1B, H340 Carc. 1A, H350 Asp. Tox. 1, H304 Aquatic Acute 2, H401
HEXACHLOROBENZENE (13C6, 99%)	(CAS No) 118-74-1 (Unlabeled)	0.5	Acute Tox. 4 (Inhalation:dust,mist), H332 Carc. 1B, H350 STOT RE 1, H372 Aquatic Chronic 2, H411
HEXACHLOROETHANE (1-13C, 99%)	(CAS No) 67-72-1 (unlabeled)	0.5	Carc. 1B, H350 Aquatic Acute 1, H400

Full text of R-, H- and EUH-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

First-aid measures after inhalation : If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse.

First-aid measures after eye contact : Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

First-aid measures after ingestion : Rinse mouth. Call a POISON CENTER/doctor/physician if you feel unwell. Immediately call a POISON CENTER or doctor/physician.

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

Symptoms/injuries : May be fatal if swallowed and enters airways.

Symptoms/injuries after inhalation : May cause cancer by inhalation.

Symptoms/injuries after skin contact : Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin. Causes skin irritation.

Symptoms/injuries after eye contact : Causes eye irritation.

Symptoms/injuries after ingestion : Swallowing a small quantity of this material will result in serious health hazard. May be fatal if swallowed and enters airways.

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 water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapor.

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

Reactivity : Vapors may form explosive mixture with air.

5.3. Advice for firefighters

Firefighting instructions : Use water spray to cool unopened containers.

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

General measures : Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking.

6.1.1. For non-emergency personnel

Emergency procedures : Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

6.4. Reference to other sections

No additional information available

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 : No naked lights. No smoking. Use only non-sparking tools. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. In case of leaking gas fire, eliminate all ignition sources if safe to do so.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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 : Store at room temperature away from light and moisture.

Incompatible materials : Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

BASE NEUTRALS MIXTURE - 4.3		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	0.5000000000 ppm Leukemia Substances for which there is a Biological Exposure Index or Indices.
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	2.5000000000 ppm Leukemia Substances for which there is a Biological Exposure Index or Indices.

HEXACHLOROBENZENE (13C6, 99%) (118-74-1 (Unlabeled))		
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m³)	0.0000000000 mg/m³ Central Nervous System impairment. Porphyrin effects. Skin damage.

DI-N-BUTYL PHTHALATE (RING-D4, 98%) (93952-11-5)		
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m³)	5.0000000000 mg/m³ Eye & Upper Respiratory Tract irritation, Testicular damage.

DIETHYL PHTHALATE (RING-D4, 98%) (93952-12-6)		
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m³)	5.0000000000 mg/m³ Upper Respiratory Tract irritation. Not classifiable as a human carcinogen.
USA OSHA	OSHA PEL (TWA) (mg/m3)	5.0000000000 mg/m³

BENZENE-D6 (D, 99.5%) (1076-43-3)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	0.5000000000 ppm Leukemia Substances for which there is a Biological Exposure Index or Indices.
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	2.5000000000 ppm Leukemia Substances for which there is a Biological Exposure Index or Indices.
USA OSHA	OSHA PEL (TWA) (ppm)	10.0000000000 ppm

ISOPHORONE (3-METHYL-D3;2,4,4,6,6-D5,98%) (78-59-1 (unlabeled))		
USA OSHA	OSHA PEL (TWA) (ppm)	4.0000000000 ppm Eye & Upper Respiratory Tract irritation. Central Nervous System impairment.

1,2,4-TRICHLOROBENZENE (D3, 98%) (2199-72-6)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	5.0000000000 ppm USA. ACGIH Threshold Limit Values - Eye & Upper Respiratory Tract irritation
USA OSHA	OSHA PEL (TWA) (ppm)	5.0000000000 ppm USA. OSHA - TABLE Z-1 Limites for Air Contaminants - 1910.1000

HEXACHLOROETHANE (1-13C, 99%) (67-72-1 (unlabeled))		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	1.0000000000 ppm Liver & kidney damage.Confirmed animal carcinogen.Danger of cutaneous absorption
USA OSHA	OSHA PEL (TWA) (ppm)	1.0000000000 ppm Skin notation.

8.2. Exposure controls

Personal protective equipment : Safety glasses. Gloves. Protective clothing. Respiratory protection of the dependent type.

Hand protection : protective gloves.

Eye protection : Wear safety glasses with side shields (or goggles) and a face shield.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : Wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

The properties listed below are for the solvent, the main component of this mixture.

Physical state	:	Liquid
Appearance	:	Liquid.
Molecular mass	:	84.15
Color	:	Colourless.
Odor	:	No data available.
Odor threshold	:	No data available
pH	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Melting point	:	5.5 °C (41.9 °F) - lit
Freezing point	:	No data available
Boiling point	:	80 °C (176 °F) - lit
Flash point	:	-11.0 °C (12.2 °F) - closed cup
Self ignition temperature	:	562 °C (1,044 °F)
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	Highly flammable liquid and vapor
Vapor pressure	:	221.3 hPa (166.0 mmHg) at 37.7°C (99.9°F), 99.5 hPa (74.6 mmHg) at 20°C (68°F)
Relative vapor density at 20 °C	:	No data available
Relative density	:	No data available
Density	:	0.874 g/cm³ at 25 °C (77 °F)
Solubility	:	No data available
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Explosive limits	:	1.3 - 8 % (V)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Vapors may form explosive mixture with air.

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Open flame. Direct sunlight.

10.5. Incompatible materials

Acids, Bases, Halogens, Strong oxidizing agents, Metallic salts.

10.6. Hazardous decomposition products

May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed. Harmful in contact with skin.

BASE NEUTRALS MIXTURE - 4.3	
LD50 oral rat	2990 mg/kg
LD50 dermal rabbit	8263 mg/kg
LC50 inhalation rat (mg/l)	44700 mg/m³ female - 4 h
ATE (oral)	500.000 mg/kg body weight
ATE (dermal)	1100.000 mg/kg body weight

BASE NEUTRALS MIXTURE - 4.3	
ATE (dust, mist)	44.700 mg/l/4h

HEXACHLOROBENZENE (13C6, 99%) (118-74-1 (Unlabeled))	
LD50 oral rat	10000 mg/kg
LC50 inhalation rat (mg/l)	3600 mg/m³
ATE (oral)	10000.000 mg/kg body weight
ATE (vapors)	3.600 mg/l/4h
ATE (dust, mist)	3.600 mg/l/4h

2-CHLORONAPHTHALENE (D7, 98%) (91-58-7 (Unlabeled))	
LD50 oral rat	2078 mg/kg
ATE (oral)	2078.000 mg/kg body weight

4-BROMOPHENYL PHENYL ETHER (PHENYL-D5, 98%) (93951-83-8)	
ATE (oral)	500.000 mg/kg body weight

4-CHLOROPHENYL PHENYL ETHER (PHENYL-D5, 98%) (7005-72-3 (unlabeled))	
ATE (oral)	5.000 mg/kg body weight
ATE (dermal)	5.000 mg/kg body weight
ATE (dust, mist)	0.050 mg/l/4h

DI-N-BUTYL PHTHALATE (RING-D4, 98%) (93952-11-5)	
LD50 oral rat	8000 mg/kg
LD50 dermal rabbit	> 20860 mg/kg
LC50 inhalation rat (mg/l)	4250 mg/m³
ATE (oral)	8000.000 mg/kg body weight
ATE (vapors)	4.250 mg/l/4h
ATE (dust, mist)	4.250 mg/l/4h

DIETHYL PHTHALATE (RING-D4, 98%) (93952-12-6)	
LD50 oral rat	8600 mg/kg
LC50 inhalation rat (mg/l)	> 4640 mg/m³ 6 h
ATE (oral)	8600.000 mg/kg body weight

BENZENE-D6 (D, 99.5%) (1076-43-3)	
LD50 oral rat	2990 mg/kg
LD50 dermal rabbit	8263 mg/kg
LC50 inhalation rat (mg/l)	44700 mg/m³ female - 4 h
ATE (oral)	2990.000 mg/kg body weight
ATE (dermal)	8263.000 mg/kg body weight
ATE (dust, mist)	44.700 mg/l/4h

DI-N-OCTYL PHTHALATE (RING-D4, 98%) (27214-90-0)	
LD50 oral rat	47000 mg/kg
ATE (oral)	47000.000 mg/kg body weight

ISOPHORONE (3-METHYL-D3;2,4,4,6,6-D5,98%) (78-59-1 (unlabeled))	
LD50 oral rat	1870 mg/kg
LD50 dermal rabbit	1382 mg/kg
ATE (oral)	1870.000 mg/kg body weight
ATE (dermal)	1382.000 mg/kg body weight

1,2,4-TRICHLOROBENZENE (D3, 98%) (2199-72-6)	
LD50 oral rat	756.0 mg/kg
LC50 inhalation rat (mg/l)	6139 mg/kg
ATE (oral)	756.000 mg/kg body weight
ATE (dust, mist)	1.500 mg/l/4h

HEXACHLOROETHANE (1-13C, 99%) (67-72-1 (unlabeled))	
LD50 dermal rabbit	32000 mg/kg
ATE (dermal)	32000.000 mg/kg body weight

Skin corrosion/irritation : Causes skin irritation.
Skin - rabbit - Skin irritation

Serious eye damage/irritation : Causes serious eye irritation.
Eyes - rabbit - Eye irritation

Respiratory or skin sensitization	:	Not available No data available
Germ cell mutagenicity	:	May cause genetic defects.
Carcinogenicity	:	May cause cancer.
Reproductive toxicity	:	Not classified
Specific target organ toxicity (single exposure)	:	Not classified No data available
Specific target organ toxicity (repeated exposure)	:	Not classified No data available
Aspiration hazard	:	May be fatal if swallowed and enters airways.
Potential Adverse human health effects and symptoms	:	Harmful if swallowed. Harmful in contact with skin.
IARC group	:	1
Symptoms/injuries after inhalation	:	May cause cancer by inhalation.
Symptoms/injuries after skin contact	:	Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin. Causes skin irritation.
Symptoms/injuries after eye contact	:	Causes eye irritation.
Symptoms/injuries after ingestion	:	Swallowing a small quantity of this material will result in serious health hazard. May be fatal if swallowed and enters airways.

SECTION 12: Ecological information

12.1. Toxicity

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

BASE NEUTRALS MIXTURE - 4.3	
LC50 fish 1	5.90 mg/l Oncorhynchus mykiss (Rainbow trout) - 96 h
LC50 other aquatic organisms 1	230 mg/l Lepomis macrochirus (Bluegill) - 96 h
EC50 Daphnia 1	22.0 mg/l Daphnia magna (Water flea) - 48 h
LC50 fish 2	15 - 32 mg/l Pimephales promelas (Fathead minnow) - 96 h
LC50 other aquatic organisms 2	9.2 mg/l Daphnia magna (Water flea) - 48 h
ErC50 (algae)	29.0 mg/l Pseudokirchneriella subcapitata (Green algae) - 72 h
LOEC (acute)	17.2 mg/l Pimephales promelas (Fathead minnow) - 7 d
NOEC (chronic)	10.2 mg/l Pimephales promelas (Fathead minnow) - 7 d

HEXACHLOROBENZENE (13C6, 99%) (118-74-1 (Unlabeled))	
LC50 fish 1	7.6 mg/l Lepomis macrochirus (Bluegill) - 96 h
EC50 Daphnia 1	0.0048 mg/l Daphnia magna (Water flea) - 48 h
NOEC (chronic)	0.005 mg/l Pimephales promelas (fathead minnow) - 96 h

2-CHLORONAPHTHALENE (D7, 98%) (91-58-7 (Unlabeled))	
EC50 Daphnia 1	1.64 mg/l Daphnia magna (Water flea) - 48 h

4-BROMOPHENYL PHENYL ETHER (PHENYL-D5, 98%) (93951-83-8)	
LC50 fish 1	50.90 mg/l Lepomis macrochirus (Bluegill) - 24 h

4-CHLOROPHENYL PHENYL ETHER (PHENYL-D5, 98%) (7005-72-3 (unlabeled))	
LC50 fish 1	0.73 mg/l Other fish - 96 h

DI-N-BUTYL PHTHALATE (RING-D4, 98%) (93952-11-5)	
LC50 fish 1	0.85 mg/l Pimephales promelas (fathead minnow) - 96 h
EC50 Daphnia 1	3.7 mg/l Daphnia magna (Water flea) - 48 h
NOEC (chronic)	0.32 mg/l Pimephales promelas (fathead minnow) - 96 h

DIETHYL PHTHALATE (RING-D4, 98%) (93952-12-6)	
LC50 fish 1	12.00 mg/l Oncorhynchus mykiss (rainbow trout) - 96 h
EC50 Daphnia 1	86.00 mg/l Daphnia magna (Water flea) - 48 h

BENZENE-D6 (D, 99.5%) (1076-43-3)	
LC50 fish 1	5.90 mg/l Oncorhynchus mykiss (Rainbow trout) - 96 h
LC50 other aquatic organisms 1	230 mg/l Lepomis macrochirus (Bluegill) - 96 h
EC50 Daphnia 1	22.0 mg/l Daphnia magna (Water flea) - 48 h
LC50 fish 2	15 - 32 mg/l Pimephales promelas (Fathead minnow) - 96 h
LC50 other aquatic organisms 2	9.2 mg/l Daphnia magna (Water flea) - 48 h

BENZENE-D6 (D, 99.5%) (1076-43-3)	
ErC50 (algae)	29.0 mg/l Pseudokirchneriella subcapitata (Green algae) - 72 h
LOEC (acute)	17.2 mg/l Pimephales promelas (Fathead minnow) - 7 d
NOEC (chronic)	10.2 mg/l Pimephales promelas (Fathead minnow) - 7 d

DI-N-OCTYL PHTHALATE (RING-D4, 98%) (27214-90-0)	
NOEC (chronic)	168 mg/l Cyprinodon variegatus (sheepshead minnow) - 96 h

ISOPHORONE (3-METHYL-D3;2,4,4,6,6-D5,98%) (78-59-1 (unlabeled))	
LC50 fish 1	145 mg/l Pimephales promelas (fathead minnow) - 96 h
EC50 Daphnia 1	120 mg/l Daphnia magna (Water flea) - 48 h
NOEC (chronic)	170 mg/l Cyprinodon variegatus (sheephead minnow) - 96 h

1,2,4-TRICHLOROBENZENE (D3, 98%) (2199-72-6)	
LC50 fish 1	1.32 mg/l Oncorhynchus mykiss (rainbow trout) - 96 h
EC50 Daphnia 1	1.7 mg/l Daphnia magna (Water flea) - 48 h

HEXACHLOROETHANE (1-13C, 99%) (67-72-1 (unlabeled))	
LC50 fish 1	0.84 mg/l Oncorhynchus mykiss (rainbow trout) - 96 h
EC50 Daphnia 1	1.36 mg/l Daphnia magan (Water flea) - 48 h
NOEC (chronic)	1 mg/l Cyprinodon variegatus (sheepshead minnow) - 96 h

12.2. Persistence and degradability

BASE NEUTRALS MIXTURE - 4.3	
Persistence and degradability	May cause long-term adverse effects in the environment.

HEXACHLOROBENZENE (13C6, 99%) (118-74-1 (Unlabeled))	
Persistence and degradability	Not available.

2-CHLORONAPHTHALENE (D7, 98%) (91-58-7 (Unlabeled))	
Persistence and degradability	Not available.

4-BROMOPHENYL PHENYL ETHER (PHENYL-D5, 98%) (93951-83-8)	
Persistence and degradability	Not available.

4-CHLOROPHENYL PHENYL ETHER (PHENYL-D5, 98%) (7005-72-3 (unlabeled))	
Persistence and degradability	Not available.

DI-N-BUTYL PHTHALATE (RING-D4, 98%) (93952-11-5)	
Persistence and degradability	Not available.

BENZENE-D6 (D, 99.5%) (1076-43-3)	
Persistence and degradability	Biodegradability Result: - Readily biodegradable.

DI-N-OCTYL PHTHALATE (RING-D4, 98%) (27214-90-0)	
Persistence and degradability	Not available.

ISOPHORONE (3-METHYL-D3;2,4,4,6,6-D5,98%) (78-59-1 (unlabeled))	
Persistence and degradability	Not available.

1,2,4-TRICHLOROBENZENE (D3, 98%) (2199-72-6)	
Persistence and degradability	Not available.

HEXACHLOROETHANE (1-13C, 99%) (67-72-1 (unlabeled))	
Persistence and degradability	Not available.

12.3. Bioaccumulative potential

2-CHLORONAPHTHALENE (D7, 98%) (91-58-7 (Unlabeled))	
Bioaccumulative potential	Not available.

4-BROMOPHENYL PHENYL ETHER (PHENYL-D5, 98%) (93951-83-8)	
Bioaccumulative potential	Not available.

1,2,4-TRICHLOROBENZENE (D3, 98%) (2199-72-6)	
Log Pow	4.00

HEXACHLOROETHANE (1-13C, 99%) (67-72-1 (unlabeled))	
Bioaccumulative potential	Bioaccumulation: Lepomis macrochirus (Bluegill) - 28 d Bioconcentration factor (BCF): 139.

12.4. Mobility in soil

BASE NEUTRALS MIXTURE - 4.3	
Ecology - soil	Not available.

HEXACHLOROBENZENE (13C6, 99%) (118-74-1 (Unlabeled))	
Ecology - soil	Not available.

2-CHLORONAPHTHALENE (D7, 98%) (91-58-7 (Unlabeled))	
Ecology - soil	Not available.

4-BROMOPHENYL PHENYL ETHER (PHENYL-D5, 98%) (93951-83-8)	
Ecology - soil	Not available.

DI-N-BUTYL PHTHALATE (RING-D4, 98%) (93952-11-5)	
Ecology - soil	Not available.

DIETHYL PHTHALATE (RING-D4, 98%) (93952-12-6)	
Ecology - soil	Not available.

BENZENE-D6 (D, 99.5%) (1076-43-3)	
Ecology - soil	Not available.

DI-N-OCTYL PHTHALATE (RING-D4, 98%) (27214-90-0)	
Ecology - soil	Not available.

ISOPHORONE (3-METHYL-D3;2,4,4,6,6-D5,98%) (78-59-1 (unlabeled))	
Ecology - soil	Not available.

1,2,4-TRICHLOROBENZENE (D3, 98%) (2199-72-6)	
Ecology - soil	Not available.

HEXACHLOROETHANE (1-13C, 99%) (67-72-1 (unlabeled))	
Ecology - soil	Not available.

12.5. Results of PBT and vPvB assessment

DI-N-BUTYL PHTHALATE (RING-D4, 98%) (93952-11-5)
This substance/mixture does not meet the PBT criteria of REACH, annex XIII.
This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

12.6. Other adverse effects

Other adverse effects : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and Local environmental control regulations.

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 : Hazardous waste due to toxicity.

SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

UN-No.(DOT) : 1114

DOT NA no. UN1114

14.2. UN proper shipping name

DOT Proper Shipping Name : Benzene

Department of Transportation (DOT) Hazard Classes : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Hazard labels (DOT) : 3 - Flammable liquid

Packing group (DOT)	:	II - Medium Danger
DOT Special Provisions (49 CFR 172.102)	:	IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	150
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	202
DOT Packaging Bulk (49 CFR 173.xxx)	:	242

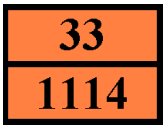
14.3. Additional information

Other information : No supplementary information available.

Overland transport

Packing group (ADR)	:	II
Class (ADR)	:	3 - Flammable liquid
Hazard identification number (Kemler No.)	:	33
Classification code (ADR)	:	F1
Danger labels (ADR)	:	3 - Flammable liquids

Orange plates :



Tunnel restriction code	:	D/E
Limited quantities (ADR)		1L
EAC	:	3WE
APP	:	A(fl)
Excepted quantities (ADR)	:	E2

Transport by sea

DOT Vessel Stowage Location	:	B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other	:	40 - Stow ‘‘clear of living quarters’’
MFAG-No	:	130

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	60 L
Civil Aeronautics Law	:	Flammable liquids

14.4. Environmental hazards

Dangerous for the environment :

Other information : No supplementary information available.

14.5. Special precautions for user

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

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

BASE NEUTRALS MIXTURE - 4.3	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard

HEXACHLOROBENZENE (13C6, 99%) (118-74-1 (Unlabeled))	
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

BENZENE-D6 (D, 99.5%) (1076-43-3)	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard

HEXACHLOROETHANE (1-13C, 99%) (67-72-1 (unlabeled))	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

15.2. International regulations

CANADA

BASE NEUTRALS MIXTURE - 4.3
Listed on the Canadian DSL (Domestic Substances List) inventory.

BENZENE-D6 (D, 99.5%) (1076-43-3)
Listed on the Canadian DSL (Domestic Substances List) inventory.

HEXACHLOROETHANE (1-13C, 99%) (67-72-1 (unlabeled))
Listed on the Canadian DSL (Domestic Substances List) inventory.

15.2.1. National regulations

No additional information available

15.3. US State regulations

BASE NEUTRALS MIXTURE - 4.3()	
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List WARNING! This product contains a chemical known by the state of California to cause cancer, birth defects or other reproductive harm.

HEXACHLOROBENZENE (13C6, 99%) (118-74-1 (Unlabeled))
U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List WARNING! This product contains a chemical known by the state of California to cause cancer, birth defects or other reproductive harm.

BENZENE-D6 (D, 99.5%) (1076-43-3)
U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List WARNING! This product contains a chemical known by the state of California to cause cancer, birth defects or other reproductive harm.

HEXACHLOROETHANE (1-13C, 99%) (67-72-1 (unlabeled))
U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List WARNING! This product contains a chemical known by the state of California to cause cancer.

SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases::

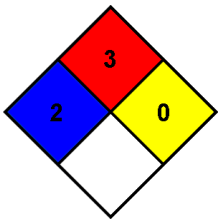
Acute Tox. 1 (Dermal)	Acute toxicity (dermal) Category 1
Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral) Category 2
Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Asp. Tox. 1	Aspiration hazard Category 1
Carc. 1A	Carcinogenicity Category 1A
Carc. 1A	Carcinogenicity (inhalation) Category 1A
Carc. 2	Carcinogenicity Category 2
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Flam. Liq. 2	Flammable liquids Category 2
Muta. 1B	Germ cell mutagenicity Category 1B
Skin Irrit. 2	skin corrosion/irritation Category 2
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H225	Highly flammable liquid and vapor
H300	Fatal if swallowed
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H310	Fatal in contact with skin
H312	Harmful in contact with skin
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H330	Fatal if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects
H350	May cause cancer
H350i	May cause cancer by inhalation
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects
R10	Flammable
R11	Highly flammable
R20	Harmful by inhalation
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed

R22	Harmful if swallowed
R26/27/28	Very toxic by inhalation, in contact with skin and if swallowed
R33	Danger of cumulative effects
R36/38	Irritating to eyes and skin
R37	Irritating to respiratory system
R38	Irritating to skin
R40	Limited evidence of a carcinogenic effect
R41	Risk of serious damage to eyes
R45	May cause cancer
R46	May cause heritable genetic damage
R49	May cause cancer by inhalation
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R51	Toxic to aquatic organisms
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R65	Harmful: may cause lung damage if swallowed
F	Highly flammable
N	Dangerous for the environment
T+	Very toxic
Xi	Irritant
Xn	Harmful

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard : 3 - Liquids and solids that can be ignited under almost all ambient conditions.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 3 Serious Hazard

Physical : 0 Minimal Hazard

CIL Mixture SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product