

1 Identification

· **Product identifier**

· **Product Name:** Semi-volatile Calibration Standard

· **Part Name:** BIG-BN-2

· **Restrictions**

This chemical/product is not and cannot be distributed in commerce (as defined in TSCA section 3(5)) or processed (as defined in TSCA section 3(13)) for consumer paint or coating removal.

· **Application of the substance / the mixture** Certified Reference Material

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Spex CertiPrep, LLC.
203 Norcross Ave, Metuchen,
NJ 08840 USA
732-549-7144
USMet-CRMSales@antylia.com

· **Information department:** product safety department

· **Emergency telephone number:**

Emergency Phone Number (24 hours)
CHEMTREC (800-424-9300)
Outside US: 703-527-3887

2 Hazard(s) identification

· **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids 2

H225 Highly flammable liquid and vapor.



GHS06 Skull and crossbones

Acute Toxicity - Dermal 2

H310 Fatal in contact with skin.

Acute Toxicity - Inhalation 3

H331 Toxic if inhaled.



GHS08 Health hazard

Germ Cell Mutagenicity 1B

H340 May cause genetic defects.

Carcinogenicity 1A

H350 May cause cancer.

Toxic to Reproduction 1B

H360 May damage fertility or the unborn child.

Specific Target Organ Toxicity - Repeated Exposure 1

H372 Causes damage to the central nervous system and the hematopoietic system through prolonged or repeated exposure.

Aspiration Hazard 1

H304 May be fatal if swallowed and enters airways.



GHS07

Acute Toxicity - Oral 4

H302 Harmful if swallowed.

Skin Irritation 2

H315 Causes skin irritation.

Eye Irritation 2A

H319 Causes serious eye irritation.

Sensitization - Skin 1

H317 May cause an allergic skin reaction.

Specific Target Organ Toxicity - Single Exposure 3

H336 May cause drowsiness or dizziness.

· **Label elements**

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02



GHS06



GHS07



GHS08

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· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

benzene
dichloromethane
bis(2-chloroethyl) ether
nitrobenzene
benzo[a]pyrene
4-Bromodiphenyl ether
4-chloroaniline

· **Hazard statements**

H225 Highly flammable liquid and vapor.
H302 Harmful if swallowed.
H310 Fatal in contact with skin.
H331 Toxic if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H340 May cause genetic defects.
H350 May cause cancer.
H360 May damage fertility or the unborn child.
H336 May cause drowsiness or dizziness.
H372 Causes damage to the central nervous system and the hematopoietic system through prolonged or repeated exposure.
H304 May be fatal if swallowed and enters airways.

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P262 Do not get in eyes, on skin, or on clothing.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 If swallowed: Immediately call a poison center/doctor.
P321 Specific treatment (see on this label).
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330 Rinse mouth.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Other hazards**

· **Results of PBT and vPvB assessment**

· PBT:	
50-32-8	benzo[a]pyrene
56-55-3	benz[a]anthracene
87-68-3	hexachlorobuta-1,3-diene
120-12-7	anthracene
120-82-1	1,2,4-trichlorobenzene
129-00-0	pyrene
191-24-2	Benzo(g,h,i)perylene
206-44-0	fluoranthene
207-08-9	benzo[k]fluoranthene
218-01-9	chrysene

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· vPvB:	
50-32-8	benzo[a]pyrene
56-55-3	benz[a]anthracene
85-01-8	phenanthrene, pure
87-68-3	hexachlorobuta-1,3-diene
129-00-0	pyrene
191-24-2	Benzo(g,h,i)perylene
206-44-0	fluoranthene
207-08-9	benzo[k]fluoranthene
218-01-9	chrysene

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

71-43-2	benzene	45.1%
75-09-2	dichloromethane	45.1%
50-32-8	benzo[a]pyrene	0.2%
53-70-3	dibenz[a,h]anthracene	0.2%
56-55-3	benz[a]anthracene	0.2%
67-72-1	hexachloroethane	0.2%
77-47-4	hexachlorocyclopentadiene	0.2%
78-59-1	3,5,5-trimethylcyclohex-2-enone	0.2%
84-74-2	dibutyl phthalate	0.2%
85-01-8	phenanthrene, pure	0.2%
85-68-7	BBP	0.2%
86-30-6	nitrosodiphenylamine	0.2%
86-73-7	fluorene	0.2%
87-68-3	hexachlorobuta-1,3-diene	0.2%
88-74-4	o-nitroaniline	0.2%
91-20-3	naphthalene	0.2%
98-95-3	nitrobenzene	0.2%
99-09-2	m-nitroaniline	0.2%
100-01-6	p-nitroaniline	0.2%
101-55-3	4-Bromodiphenyl ether	0.2%
106-46-7	1,4-dichlorobenzene	0.2%
106-47-8	4-chloroaniline	0.2%
108-60-1	bis(2-chloro-1-methylethyl) ether	0.2%
111-44-4	bis(2-chloroethyl) ether	0.2%
111-91-1	bis(2-chloroethoxy)methane	0.2%
117-81-7	bis(2-ethylhexyl) phthalate	0.2%
117-84-0	Di-n-octyl Phthalate	0.2%
118-74-1	hexachlorobenzene	0.2%
120-12-7	anthracene	0.2%
120-82-1	1,2,4-trichlorobenzene	0.2%
121-14-2	2,4-dinitrotoluene	0.2%
129-00-0	pyrene	0.2%
131-11-3	dimethyl phthalate	0.2%
191-24-2	Benzo(g,h,i)perylene	0.2%
193-39-5	indeno[1,2,3-cd]pyrene	0.2%
205-99-2	benz[e]acephenanthrylene	0.2%
206-44-0	fluoranthene	0.2%
207-08-9	benzo[k]fluoranthene	0.2%
208-96-8	acenaphthylene	0.2%
218-01-9	chrysene	0.2%
606-20-2	2,6-dinitrotoluene	0.2%

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621-64-7	nitrosodipropylamine	0.2%
7005-72-3	4-Chlorophenyl-phenyl ether	0.2%
Chemical identification of the substance/preparation		
83-32-9	acenaphthene	0.2%
84-66-2	diethyl phthalate	0.2%
91-57-6	2-methylnaphthalene	0.2%
91-58-7	2-Chloronaphthalene	0.2%
95-50-1	1,2-dichlorobenzene	0.2%
100-51-6	Benzyl alcohol	0.2%
132-64-9	dibenzofuran	0.2%
541-73-1	1,3-dichlorobenzene	0.2%

4 First-aid measures

Description of first aid measures

General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation:

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

After skin contact: Immediately wash with water and soap and rinse thoroughly.

After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing:

Immediately call a doctor.

Do not give anything to eat or drink - Do not induce vomiting

Information for Doctor:

Most important symptoms and effects, both acute and delayed No further relevant information available.

Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing agents: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture During heating or in case of fire poisonous gases are produced.

Advice for firefighters

Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

Environmental precautions:

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Protective Action Criteria for Chemicals

PAC-I:		
71-43-2	benzene	52 ppm
75-09-2	dichloromethane	200 ppm
50-32-8	benzo[a]pyrene	0.6 mg/m ³
53-70-3	dibenz[a,h]anthracene	0.093 mg/m ³
56-55-3	benz[a]anthracene	0.6 mg/m ³
67-72-1	hexachloroethane	3 ppm

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		(Contd. of page 4)
77-47-4	hexachlorocyclopentadiene	0.03 ppm
78-59-1	3,5,5-trimethylcyclohex-2-enone	12 ppm
83-32-9	acenaphthene	3.6 mg/m ³
84-66-2	diethyl phthalate	15 mg/m ³
84-74-2	dibutyl phthalate	15 mg/m ³
85-01-8	phenanthrene, pure	5.4 mg/m ³
85-68-7	BBP	15 mg/m ³
86-30-6	nitrosodiphenylamine	5.5 mg/m ³
86-73-7	fluorene	6.6 mg/m ³
87-68-3	hexachlorobuta-1,3-diene	1 ppm
88-74-4	o-nitroaniline	6.2 mg/m ³
91-20-3	naphthalene	15 ppm
91-57-6	2-methylnaphthalene	9 mg/m ³
91-58-7	2-Chloronaphthalene	6.2 mg/m ³
95-50-1	1,2-dichlorobenzene	50 ppm
98-95-3	nitrobenzene	3 ppm
99-09-2	m-nitroaniline	1.6 mg/m ³
100-01-6	p-nitroaniline	9 mg/m ³
100-51-6	Benzyl alcohol	30 ppm
101-55-3	4-Bromodiphenyl ether	0.33 mg/m ³
106-46-7	1,4-dichlorobenzene	30 ppm
106-47-8	4-chloroaniline	6.1 mg/m ³
108-60-1	bis(2-chloro-1-methylethyl) ether	0.15 ppm
111-44-4	bis(2-chloroethyl) ether	10 ppm
PAC-2:		
71-43-2	benzene	800 ppm
75-09-2	dichloromethane	560 ppm
50-32-8	benzo[a]pyrene	120 mg/m ³
53-70-3	dibenz[a,h]anthracene	1 mg/m ³
56-55-3	benz[a]anthracene	120 mg/m ³
67-72-1	hexachloroethane	36 ppm
77-47-4	hexachlorocyclopentadiene	0.55 ppm
78-59-1	3,5,5-trimethylcyclohex-2-enone	33 ppm
83-32-9	acenaphthene	40 mg/m ³
84-66-2	diethyl phthalate	300 mg/m ³
84-74-2	dibutyl phthalate	1,600 mg/m ³
85-01-8	phenanthrene, pure	59 mg/m ³
85-68-7	BBP	77 mg/m ³
86-30-6	nitrosodiphenylamine	60 mg/m ³
86-73-7	fluorene	72 mg/m ³
87-68-3	hexachlorobuta-1,3-diene	3 ppm
88-74-4	o-nitroaniline	68 mg/m ³
91-20-3	naphthalene	83 ppm
91-57-6	2-methylnaphthalene	54 mg/m ³
91-58-7	2-Chloronaphthalene	69 mg/m ³
95-50-1	1,2-dichlorobenzene	170 ppm
98-95-3	nitrobenzene	20 ppm
99-09-2	m-nitroaniline	18 mg/m ³
100-01-6	p-nitroaniline	71 mg/m ³
100-51-6	Benzyl alcohol	52 ppm
101-55-3	4-Bromodiphenyl ether	3.6 mg/m ³
106-46-7	1,4-dichlorobenzene	170 ppm
106-47-8	4-chloroaniline	68 mg/m ³
108-60-1	bis(2-chloro-1-methylethyl) ether	1.6 ppm
111-44-4	bis(2-chloroethyl) ether	25 ppm

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· PAC-3:		
71-43-2	benzene	4000* ppm
75-09-2	dichloromethane	6,900 ppm
50-32-8	benzo[a]pyrene	700 mg/m ³
53-70-3	dibenz[a,h]anthracene	2.9 mg/m ³
56-55-3	benz[a]anthracene	700 mg/m ³
67-72-1	hexachloroethane	300 ppm
77-47-4	hexachlorocyclopentadiene	1 ppm
78-59-1	3,5,5-trimethylcyclohex-2-enone	200 ppm
83-32-9	acenaphthene	240 mg/m ³
84-66-2	diethyl phthalate	1,800 mg/m ³
84-74-2	dibutyl phthalate	9300* mg/m ³
85-01-8	phenanthrene, pure	360 mg/m ³
85-68-7	BBP	460 mg/m ³
86-30-6	nitrosodiphenylamine	360 mg/m ³
86-73-7	fluorene	430 mg/m ³
87-68-3	hexachlorobuta-1,3-diene	10 ppm
88-74-4	o-nitroaniline	410 mg/m ³
91-20-3	naphthalene	500 ppm
91-57-6	2-methylnaphthalene	320 mg/m ³
91-58-7	2-Chloronaphthalene	410 mg/m ³
95-50-1	1,2-dichlorobenzene	1,000 ppm
98-95-3	nitrobenzene	200 ppm
99-09-2	m-nitroaniline	110 mg/m ³
100-01-6	p-nitroaniline	300 mg/m ³
100-51-6	Benzyl alcohol	740 ppm
101-55-3	4-Bromodiphenyl ether	21 mg/m ³
106-46-7	1,4-dichlorobenzene	1,000 ppm
106-47-8	4-chloroaniline	100 mg/m ³
108-60-1	bis(2-chloro-1-methylethyl) ether	22 ppm
111-44-4	bis(2-chloroethyl) ether	250 ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

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71-43-2 benzene	
PEL	Short-term value: 15* mg/m ³ , 5* ppm Long-term value: 3* mg/m ³ , 1* ppm *table Z-2 for exclusions in 29CFR1910.1028(d)
REL	Short-term value: 1 ppm Long-term value: 0.1 ppm See Pocket Guide App. A
TLV	Short-term value: (2.5) NIC-0.1 ppm Long-term value: (0.5) NIC-0.02 ppm Skin; BEI, A1
75-09-2 dichloromethane	
PEL	Short-term value: 125 ppm Long-term value: 25 ppm see 29 CFR 1910.1052
REL	See Pocket Guide App. A
TLV	Long-term value: 50 ppm BEI, A3
50-32-8 benzo[a]pyrene	
PEL	Long-term value: 0.2 mg/m ³ see Coal tar pitch volatiles
REL	Long-term value: 0.1 mg/m ³ Coal tar pitch volatile; Pocket Guide Apps. A+C
TLV	L; BEIp, A2
56-55-3 benz[a]anthracene	
TLV	L; BEIp, A2
67-72-1 hexachloroethane	
PEL	Long-term value: 10 mg/m ³ , 1 ppm Skin
REL	Long-term value: 10 mg/m ³ , 1 ppm Skin; See Pocket Guide Apps. A and C
TLV	Long-term value: 1 ppm Skin, A3
77-47-4 hexachlorocyclopentadiene	
REL	Long-term value: 0.1 mg/m ³ , 0.01 ppm
TLV	Long-term value: 0.01 ppm A4
78-59-1 3,5,5-trimethylcyclohex-2-enone	
PEL	Long-term value: 140 mg/m ³ , 25 ppm
REL	Long-term value: 23 mg/m ³ , 4 ppm
TLV	Ceiling limit value: 5 ppm A3
84-74-2 dibutyl phthalate	
PEL	Long-term value: 5 mg/m ³
REL	Long-term value: 5 mg/m ³
TLV	Long-term value: 5 mg/m ³
87-68-3 hexachlorobuta-1,3-diene	
REL	Long-term value: 0.24 mg/m ³ , 0.02 ppm Skin; See Pocket Guide App. A
TLV	Long-term value: 0.02 ppm Skin, A3
91-20-3 naphthalene	
PEL	Long-term value: 50 mg/m ³ , 10 ppm
REL	Short-term value: 75 mg/m ³ , 15 ppm Long-term value: 50 mg/m ³ , 10 ppm
TLV	Long-term value: 10 ppm Skin; BEI, A3
98-95-3 nitrobenzene	
PEL	Long-term value: 5 mg/m ³ , 1 ppm Skin

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REL	Long-term value: 5 mg/m ³ , 1 ppm Skin
TLV	Long-term value: 1 ppm Skin; BEIm, A3
100-01-6 p-nitroaniline	
PEL	Long-term value: 6 mg/m ³ , 1 ppm Skin
REL	Long-term value: 3 mg/m ³ Skin
TLV	Long-term value: 3 mg/m ³ Skin; BEI-M, A4
106-46-7 1,4-dichlorobenzene	
PEL	Long-term value: 450 mg/m ³ , 75 ppm
REL	See Pocket Guide App. A
TLV	Long-term value: 10 ppm A3
111-44-4 bis(2-chloroethyl) ether	
PEL	Ceiling limit value: 90 mg/m ³ , 15 ppm Skin
REL	Short-term value: 60 mg/m ³ , 10 ppm Long-term value: 30 mg/m ³ , 5 ppm Skin; See Pocket Guide App. A
TLV	Short-term value: 10 ppm Long-term value: 5 ppm Skin, A4
117-81-7 bis(2-ethylhexyl) phthalate	
PEL	Long-term value: 5 mg/m ³
REL	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ See Pocket Guide App. A
TLV	Long-term value: NIC-0.1 mg/m ³ NIC: Skin, A3
118-74-1 hexachlorobenzene	
TLV	Long-term value: 0.002 mg/m ³ Skin, A3
120-82-1 1,2,4-trichlorobenzene	
REL	Ceiling limit value: 40 mg/m ³ , 5 ppm
TLV	Ceiling limit value: 5 ppm
131-11-3 dimethyl phthalate	
PEL	Long-term value: 5 mg/m ³
REL	Long-term value: 5 mg/m ³
TLV	Long-term value: 5 mg/m ³
205-99-2 benz[e]acephenanthrylene	
TLV	L; BEIp, A2
218-01-9 chrysene	
PEL	Long-term value: 0.2 mg/m ³ see Coal Tar Pitch Volatiles
REL	Long-term value: 0.1* mg/m ³ *Cyclohexane-extrble.fraction;PocketGuide Apps.A+C
TLV	L, BEIp, A3
Ingredients with biological limit values:	
71-43-2 benzene	
BEI	25 µg/g creatinine Medium: urine Time: end of shift Parameter: S-Phenylmercapturic acid (background)
	500 µg/g creatinine Medium: urine Time: end of shift Parameter: t,t-Muconic acid (background)

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75-09-2 dichloromethane	
BEI	0.3 mg/L Medium: urine Time: end of shift Parameter: Dichloromethane (semi-quantitative)
50-32-8 benzo[a]pyrene	
BEI	- Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative)
56-55-3 benz[a]anthracene	
BEI	- Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative)
91-20-3 naphthalene	
BEI	- Medium: - Time: end of shift Parameter: 1-Naphthol with hydrolysis + 2-Naphthol with hydrolysis (Nq,Ns)
98-95-3 nitrobenzene	
BEI	5 % of hemoglobin Medium: blood Time: during or end of shift Parameter: Methemoglobin (background, nonspecific,)
100-01-6 p-nitroaniline	
BEI	1.5 % of hemoglobin Medium: blood Time: during or end of shift Parameter: Methemoglobin (background, nonspecific, semi-quantitative)
205-99-2 benz[e]acephenanthrylene	
BEI	- Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative)
218-01-9 chrysene	
BEI	- Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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- **Penetration time of glove material** The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· Form:	Liquid
· Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.

· **pH-value:** Not applicable.

· **Change in condition**

· Melting point/Melting range:	Undetermined.
· Boiling point/Boiling range:	40 °C (104 °F)

· **Flash point:** < 0 °C (< 32 °F)

· **Flammability (solid, gaseous):** Highly flammable.

· **Ignition temperature:** 555 °C (1,031 °F)

· **Decomposition temperature:** Not applicable.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

· Lower:	1.2 Vol %
· Upper:	22 Vol %

· **Vapor pressure at 20 °C (68 °F):** 453 hPa (339.8 mm Hg)

· **Density at 20 °C (68 °F)** 1.105 g/cm³ (9.22123 lbs/gal)

· **Relative density** Not applicable.

· **Vapor density** Not applicable.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with**

· **Water:** Fully miscible.

· **Partition coefficient (n-octanol/water):** Not applicable.

· **Viscosity:**

· Dynamic:	Not applicable.
· Kinematic:	Not applicable.

· **Solvent content:**

· Organic solvents:	91.2 %
· VOC content:	46.10 %

· **Solids content:** 5.0 %

· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.

· **Chemical stability**

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Possibility of hazardous reactions** No dangerous reactions known.

· **Conditions to avoid** No further relevant information available.

· **Incompatible materials:** No further relevant information available.

· **Hazardous decomposition products:** No dangerous decomposition products known.

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Product Name: Semi-volatile Calibration Standard

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11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

71-43-2 benzene		
Oral	LD50	4,894 mg/kg (rat)
Dermal	LD50	48 mg/kg (mouse)
Inhalative	LC50/4 h	9,980 mg/l (mouse)
75-09-2 dichloromethane		
Oral	LD50	1,600 mg/kg (rat)
Inhalative	LC50/4 h	88 mg/l (rat)

· **Primary irritant effect:**

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Irritating effect.

· **Sensitization:** Sensitization possible through skin contact.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Toxic

Harmful

Irritant

Product is suspected to cause damage to fertility.

Product is suspected to cause birth defects.

The product can cause inheritable damage.

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
71-43-2	benzene	1
75-09-2	dichloromethane	2A
50-32-8	benzo[a]pyrene	1
53-70-3	dibenz[a,h]anthracene	2A
56-55-3	benz[a]anthracene	2B
67-72-1	hexachloroethane	2B
78-59-1	3,5,5-trimethylcyclohex-2-enone	2B
83-32-9	acenaphthene	3
85-01-8	phenanthrene, pure	3
85-68-7	BBP	3
86-30-6	nitrosodiphenylamine	3
86-73-7	fluorene	3
87-68-3	hexachlorobuta-1,3-diene	3
91-20-3	naphthalene	2B
95-50-1	1,2-dichlorobenzene	3
98-95-3	nitrobenzene	2B
106-46-7	1,4-dichlorobenzene	2B
106-47-8	4-chloroaniline	2B
108-60-1	bis(2-chloro-1-methylethyl) ether	3
111-44-4	bis(2-chloroethyl) ether	3
117-81-7	bis(2-ethylhexyl) phthalate	2B
118-74-1	hexachlorobenzene	2B
120-12-7	anthracene	3
121-14-2	2,4-dinitrotoluene	2B
129-00-0	pyrene	3
191-24-2	Benzo(g,h,i)perylene	3
193-39-5	indeno[1,2,3-cd]pyrene	2B
205-99-2	benz[e]acephenanthrylene	2B
206-44-0	fluoranthene	3
207-08-9	benzo[k]fluoranthene	2B
· NTP (National Toxicology Program)		
71-43-2	benzene	K

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Product Name: Semi-volatile Calibration Standard

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75-09-2	dichloromethane	R
50-32-8	benzo[a]pyrene	R
53-70-3	dibenz[a,h]anthracene	R
56-55-3	benz[a]anthracene	R
67-72-1	hexachloroethane	R
85-01-8	phenanthrene, pure	R
86-73-7	fluorene	R
91-20-3	naphthalene	R
98-95-3	nitrobenzene	R
106-46-7	1,4-dichlorobenzene	R
117-81-7	bis(2-ethylhexyl) phthalate	R
118-74-1	hexachlorobenzene	R
120-12-7	anthracene	R
129-00-0	pyrene	R
193-39-5	indeno[1,2,3-cd]pyrene	R
205-99-2	benz[e]acephenanthrylene	R
206-44-0	fluoranthene	R
207-08-9	benzo[k]fluoranthene	R
218-01-9	chrysene	R
621-64-7	nitrosodipropylamine	R
· OSHA-Ca (Occupational Safety & Health Administration)		
71-43-2	benzene	
75-09-2	dichloromethane	

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 3 (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
- **Results of PBT and vPvB assessment**

· PBT:		
50-32-8	benzo[a]pyrene	
56-55-3	benz[a]anthracene	
87-68-3	hexachlorobuta-1,3-diene	
120-12-7	anthracene	
120-82-1	1,2,4-trichlorobenzene	
129-00-0	pyrene	
191-24-2	Benzo(g,h,i)perylene	
206-44-0	fluoranthene	
207-08-9	benzo[k]fluoranthene	
218-01-9	chrysene	

· vPvB:		
50-32-8	benzo[a]pyrene	
56-55-3	benz[a]anthracene	
85-01-8	phenanthrene, pure	
87-68-3	hexachlorobuta-1,3-diene	
129-00-0	pyrene	
191-24-2	Benzo(g,h,i)perylene	
206-44-0	fluoranthene	
207-08-9	benzo[k]fluoranthene	
218-01-9	chrysene	

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· Other adverse effects No further relevant information available.

13 Disposal considerations

- Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

· UN-Number · DOT, ADR, IMDG, IATA	UN1992
· UN proper shipping name · DOT · ADR · IMDG · IATA	Flammable liquids, toxic, n.o.s. (Benzene) 1992 FLAMMABLE LIQUID, TOXIC, N.O.S. (BENZENE), ENVIRONMENTALLY HAZARDOUS FLAMMABLE LIQUID, TOXIC, N.O.S. (BENZENE, dibutyl phthalate), MARINE POLLUTANT FLAMMABLE LIQUID, TOXIC, N.O.S. (BENZENE)
· Transport hazard class(es) · DOT	
	
· Class · Label	3 Flammable liquids 3, 6.1
· ADR	
	
· Class · Label	3 Flammable liquids 3+6.1
· IMDG	
	
· Class · Label	3 Flammable liquids 3/6.1
· IATA	
	
· Class · Label	3 Flammable liquids 3 (6.1)
· Packing group · DOT, ADR, IMDG, IATA	II
· Environmental hazards: · Marine pollutant: · Special marking (ADR):	Symbol (fish and tree) Symbol (fish and tree)
· Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Segregation groups	Warning: Flammable liquids 336 F-E,S-D (SGG10) Liquid halogenated hydrocarbons

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Product Name: Semi-volatile Calibration Standard

(Contd. of page 13)

· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.	
· Transport/Additional information:	
· ADR	
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S. (BENZENE), 3 (6.1), II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 313 (Specific toxic chemical listings):	
71-43-2	benzene
75-09-2	dichloromethane
50-32-8	benzo[a]pyrene
53-70-3	dibenz[a,h]anthracene
56-55-3	benz[a]anthracene
67-72-1	hexachloroethane
77-47-4	hexachlorocyclopentadiene
84-74-2	dibutyl phthalate
85-01-8	phenanthrene, pure
86-30-6	nitrosodiphenylamine
87-68-3	hexachlorobuta-1,3-diene
91-20-3	naphthalene
95-50-1	1,2-dichlorobenzene
98-95-3	nitrobenzene
100-01-6	p-nitroaniline
106-46-7	1,4-dichlorobenzene
106-47-8	4-chloroaniline
108-60-1	bis(2-chloro-1-methylethyl) ether
111-44-4	bis(2-chloroethyl) ether
111-91-1	bis(2-chloroethoxy)methane
117-81-7	bis(2-ethylhexyl) phthalate
118-74-1	hexachlorobenzene
120-12-7	anthracene
120-82-1	1,2,4-trichlorobenzene
121-14-2	2,4-dinitrotoluene
131-11-3	dimethyl phthalate
132-64-9	dibenzofuran
191-24-2	Benzo(g,h,i)perylene
193-39-5	indeno[1,2,3-cd]pyrene
205-99-2	benz[e]acephenanthrylene

- TSCA (Toxic Substances Control Act):
This chemical/product is not and cannot be distributed in commerce (as defined in TSCA section 3(5)) or processed (as defined in TSCA section 3(13)) for consumer paint or coating removal.

71-43-2	benzene	ACTIVE
75-09-2	dichloromethane	ACTIVE
50-32-8	benzo[a]pyrene	ACTIVE
53-70-3	dibenz[a,h]anthracene	ACTIVE

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Product Name: Semi-volatile Calibration Standard

(Contd. of page 14)

56-55-3	benz[a]anthracene	ACTIVE
67-72-1	hexachloroethane	ACTIVE
77-47-4	hexachlorocyclopentadiene	ACTIVE
78-59-1	3,5,5-trimethylcyclohex-2-enone	ACTIVE
83-32-9	acenaphthene	ACTIVE
84-66-2	diethyl phthalate	ACTIVE
84-74-2	dibutyl phthalate	ACTIVE
85-01-8	phenanthrene, pure	ACTIVE
85-68-7	BBP	ACTIVE
86-30-6	nitrosodiphenylamine	ACTIVE
86-73-7	fluorene	ACTIVE
87-68-3	hexachlorobuta-1,3-diene	ACTIVE
88-74-4	o-nitroaniline	ACTIVE
91-20-3	naphthalene	ACTIVE
91-57-6	2-methylnaphthalene	ACTIVE
91-58-7	2-Chloronaphthalene	ACTIVE
95-50-1	1,2-dichlorobenzene	ACTIVE
98-95-3	nitrobenzene	ACTIVE
99-09-2	m-nitroaniline	ACTIVE
100-01-6	p-nitroaniline	ACTIVE
100-51-6	Benzyl alcohol	ACTIVE
101-55-3	4-Bromodiphenyl ether	ACTIVE
106-46-7	1,4-dichlorobenzene	ACTIVE
106-47-8	4-chloroaniline	ACTIVE
108-60-1	bis(2-chloro-1-methylethyl) ether	ACTIVE
111-44-4	bis(2-chloroethyl) ether	ACTIVE

- Hazardous Air Pollutants

71-43-2	benzene	
75-09-2	dichloromethane	
50-32-8	benzo[a]pyrene	
53-70-3	dibenz[a,h]anthracene	
56-55-3	benz[a]anthracene	
67-72-1	hexachloroethane	
77-47-4	hexachlorocyclopentadiene	
78-59-1	3,5,5-trimethylcyclohex-2-enone	
84-74-2	dibutyl phthalate	
85-01-8	phenanthrene, pure	
86-73-7	fluorene	
87-68-3	hexachlorobuta-1,3-diene	
91-20-3	naphthalene	
98-95-3	nitrobenzene	
106-46-7	1,4-dichlorobenzene	
111-44-4	bis(2-chloroethyl) ether	
117-81-7	bis(2-ethylhexyl) phthalate	
118-74-1	hexachlorobenzene	
120-12-7	anthracene	
120-82-1	1,2,4-trichlorobenzene	
121-14-2	2,4-dinitrotoluene	
129-00-0	pyrene	
131-11-3	dimethyl phthalate	
132-64-9	dibenzofuran	
193-39-5	indeno[1,2,3-cd]pyrene	
205-99-2	benz[e]acephenanthrylene	
206-44-0	fluoranthene	
207-08-9	benzo[k]fluoranthene	
218-01-9	chrysene	

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· Proposition 65

· Chemicals known to cause cancer:

71-43-2	benzene
75-09-2	dichloromethane
50-32-8	benzo[a]pyrene
53-70-3	dibenz[a,h]anthracene
56-55-3	benz[a]anthracene
67-72-1	hexachloroethane
86-30-6	nitrosodiphenylamine
87-68-3	hexachlorobuta-1,3-diene
91-20-3	naphthalene
98-95-3	nitrobenzene
106-46-7	1,4-dichlorobenzene
106-47-8	4-chloroaniline
108-60-1	bis(2-chloro-1-methylethyl) ether
111-44-4	bis(2-chloroethyl) ether
117-81-7	bis(2-ethylhexyl) phthalate
118-74-1	hexachlorobenzene
121-14-2	2,4-dinitrotoluene
193-39-5	indeno[1,2,3-cd]pyrene
205-99-2	benz[e]acephenanthrylene
207-08-9	benzo[k]fluoranthene
218-01-9	chrysene
606-20-2	2,6-dinitrotoluene
621-64-7	nitrosodipropylamine

· Chemicals known to cause reproductive toxicity for females:

84-74-2	dibutyl phthalate
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· Chemicals known to cause reproductive toxicity for males:

71-43-2	benzene
84-74-2	dibutyl phthalate
98-95-3	nitrobenzene
117-81-7	bis(2-ethylhexyl) phthalate
121-14-2	2,4-dinitrotoluene
606-20-2	2,6-dinitrotoluene

· Chemicals known to cause developmental toxicity:

71-43-2	benzene
84-74-2	dibutyl phthalate
85-68-7	BBP
117-81-7	bis(2-ethylhexyl) phthalate
118-74-1	hexachlorobenzene

· Carcinogenic categories

· EPA (Environmental Protection Agency)

71-43-2	benzene	A, K/L
75-09-2	dichloromethane	L
50-32-8	benzo[a]pyrene	CaH
53-70-3	dibenz[a,h]anthracene	B2
56-55-3	benz[a]anthracene	B2
67-72-1	hexachloroethane	L
77-47-4	hexachlorocyclopentadiene	E, NL
78-59-1	3,5,5-trimethylcyclohex-2-enone	C
83-32-9	acenaphthene	A
84-66-2	diethyl phthalate	D
84-74-2	dibutyl phthalate	D
85-01-8	phenanthrene, pure	D
85-68-7	BBP	C
86-30-6	nitrosodiphenylamine	B2

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86-73-7	fluorene	D
87-68-3	hexachlorobuta-1,3-diene	C
91-20-3	naphthalene	C, CBD
91-57-6	2-methylnaphthalene	I
95-50-1	1,2-dichlorobenzene	D
98-95-3	nitrobenzene	L
101-55-3	4-Bromodiphenyl ether	D
111-44-4	bis(2-chloroethyl) ether	B2
111-91-1	bis(2-chloroethoxy)methane	D
117-81-7	bis(2-ethylhexyl) phthalate	B2
118-74-1	hexachlorobenzene	B2
120-12-7	anthracene	D
120-82-1	1,2,4-trichlorobenzene	D
129-00-0	pyrene	D
131-11-3	dimethyl phthalate	D
132-64-9	dibenzofuran	D

· **TLV (Threshold Limit Value)**

71-43-2	benzene	A1
75-09-2	dichloromethane	A3
50-32-8	benzo[a]pyrene	A2
56-55-3	benz[a]anthracene	A2
67-72-1	hexachloroethane	A3
77-47-4	hexachlorocyclopentadiene	A4
78-59-1	3,5,5-trimethylcyclohex-2-enone	A3
84-66-2	diethyl phthalate	A4
87-68-3	hexachlorobuta-1,3-diene	A3
91-20-3	naphthalene	A4
91-57-6	2-methylnaphthalene	A4
95-50-1	1,2-dichlorobenzene	A4
98-95-3	nitrobenzene	A3
100-01-6	p-nitroaniline	A4
106-46-7	1,4-dichlorobenzene	A3
111-44-4	bis(2-chloroethyl) ether	A4
117-81-7	bis(2-ethylhexyl) phthalate	A3
118-74-1	hexachlorobenzene	A3
205-99-2	benz[e]acephenanthrylene	A2
218-01-9	chrysene	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

71-43-2	benzene
75-09-2	dichloromethane
50-32-8	benzo[a]pyrene
67-72-1	hexachloroethane
87-68-3	hexachlorobuta-1,3-diene
106-46-7	1,4-dichlorobenzene
111-44-4	bis(2-chloroethyl) ether
117-81-7	bis(2-ethylhexyl) phthalate
218-01-9	chrysene

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



· **Signal word** Danger

· **Hazard-determining components of labeling:**
benzene

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Product Name: Semi-volatile Calibration Standard

(Contd. of page 17)

dichloromethane
bis(2-chloroethyl) ether
nitrobenzene
benzo[a]pyrene
4-Bromodiphenyl ether
4-chloroaniline

Hazard statements

H225 Highly flammable liquid and vapor.
H302 Harmful if swallowed.
H310 Fatal in contact with skin.
H331 Toxic if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H340 May cause genetic defects.
H350 May cause cancer.
H360 May damage fertility or the unborn child.
H336 May cause drowsiness or dizziness.
H372 Causes damage to the central nervous system and the hematopoietic system through prolonged or repeated exposure.
H304 May be fatal if swallowed and enters airways.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P262 Do not get in eyes, on skin, or on clothing.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 If swallowed: Immediately call a poison center/doctor.
P321 Specific treatment (see on this label).
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330 Rinse mouth.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations:

Additional classification according to Decree on Hazardous Materials: Carcinogenic hazardous material group III (dangerous).

Information about limitation of use:

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Department issuing SDS: product safety department

Contact:

Spex CertiPrep, LLC.
1-732-549-7144

Date of preparation / last revision 06/15/2023

Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flammable Liquids 2: Flammable liquids – Category 2
Acute Toxicity - Oral 4: Acute toxicity – Category 4
Acute Toxicity - Dermal 2: Acute toxicity – Category 2

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Acute Toxicity - Inhalation 3: Acute toxicity – Category 3
Skin Irritation 2: Skin corrosion/irritation – Category 2
Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A
Sensitization - Skin 1: Skin sensitisation – Category 1
Germ Cell Mutagenicity 1B: Germ cell mutagenicity – Category 1B
Carcinogenicity 1A: Carcinogenicity – Category 1A
Toxic to Reproduction 1B: Reproductive toxicity – Category 1B
Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3
Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) – Category 1
Aspiration Hazard 1: Aspiration hazard – Category 1

US —