

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

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

#### 1.1 Product identifier

Trade name : BOND + SEAL BLACK - 400 ML  
Product code : 0890100113

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

Use of the Sub-stance/Mixture : Adhesives, Sealant  
Professional use product

#### 1.3 Details of the supplier of the safety data sheet

Company : Adolf Wuerth GmbH & Co. KG  
Reinhold-Würth-Str. 12-17  
74653 Künzelsau  
  
Telephone : +49 794015 0  
  
Telefax : +49 794015 10 00  
  
E-mail address of person responsible for the SDS : prodsafe@wuerth.com

#### 1.4 Emergency telephone number

+49 (0)6132 – 84463

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### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Respiratory sensitisation, Category 1      H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Specific target organ toxicity - repeated exposure, Category 2      H373: May cause damage to organs through prolonged or repeated exposure.

#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements : H334 May cause allergy or asthma symptoms or breathing

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



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Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

difficulties if inhaled.  
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements :

**Prevention:**

P260 Do not breathe mist or vapours.  
P284 Wear respiratory protection.

**Response:**

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)  
4,4'-Diphenylmethane diisocyanate

**Additional Labelling**

EUH204 Contains isocyanates. May produce an allergic reaction.

### 2.3 Other hazards

Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).  
Vapours may form explosive mixture with air.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

**Components**

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Methylene-bis-4,1-(N-phenylene-N'-butylurea)	77703-56-1 416-600-4	Aquatic Chronic 4; H413	>= 2,5 - < 10
Xylene	1330-20-7 215-535-7 601-022-00-9 01-2119488216-32	Flam. Liq. 3; H226 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 STOT RE 2; H373 Asp. Tox. 1; H304 Aquatic Chronic 3; H412	>= 1 - < 2,5
Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aro-	64742-82-1	Flam. Liq. 3; H226 STOT SE 3; H336	>= 1 - < 2,5

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

matix (2-25%)	01-2119458049-33	STOT RE 1; H372 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	
4,4'-Diphenylmethane diisocyanate	101-68-8 202-966-0 615-005-00-9 01-2119457014-47	Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 Carc. 2; H351 STOT SE 3; H335 STOT RE 2; H373	>= 0,1 - < 1

For explanation of abbreviations see section 16.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
When symptoms persist or in all cases of doubt seek medical advice.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
- If inhaled : If inhaled, remove to fresh air.  
If not breathing, give artificial respiration.  
If breathing is difficult, give oxygen.  
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water.  
Remove contaminated clothing and shoes.  
Get medical attention.  
Wash clothing before reuse.  
Thoroughly clean shoes before reuse.
- In case of eye contact : Flush eyes with water as a precaution.  
Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, DO NOT induce vomiting.  
Get medical attention.  
Rinse mouth thoroughly with water.

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

- Risks : May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
May cause damage to organs through prolonged or repeated exposure.
- Respiratory symptoms, including pulmonary edema, may be delayed.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version	Revision Date:	SDS Number:	Date of last issue: 27.02.2019
14.3	10.10.2019	379607-00003	Date of first issue: 11.06.2010

---

Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

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

Treatment : Treat symptomatically and supportively.

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical  
Water spray in large fire situations

Unsuitable extinguishing media : High volume water jet

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

Specific hazards during fire-fighting : Do not use a solid water stream as it may scatter and spread fire.  
Flash back possible over considerable distance.  
Vapours may form explosive mixtures with air.  
Exposure to combustion products may be a hazard to health.  
If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.

Hazardous combustion products : Carbon oxides  
Metal oxides  
Nitrogen oxides (NO<sub>x</sub>)

### 5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Remove all sources of ignition.  
Use personal protective equipment.  
Follow safe handling advice and personal protective equip-

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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version	Revision Date:	SDS Number:	Date of last issue: 27.02.2019
14.3	10.10.2019	379607-00003	Date of first issue: 11.06.2010

---

ment recommendations.

### 6.2 Environmental precautions

Environmental precautions : Discharge into the environment must be avoided.  
Prevent further leakage or spillage if safe to do so.  
Prevent spreading over a wide area (e.g. by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Non-sparking tools should be used.  
Soak up with inert absorbent material.  
Suppress (knock down) gases/vapours/mists with a water spray jet.  
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
After approximately one hour, transfer to waste container and do not seal, due to evolution of carbon dioxide.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

### 6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.

Advice on safe handling : Do not get on skin or clothing.  
Avoid inhalation of vapour or mist.  
Do not swallow.  
Avoid contact with eyes.  
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment  
Keep container tightly closed.  
Keep away from water.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

Protect from moisture.  
Already sensitised individuals should consult their physician regarding working with respiratory irritants or sensitisers.  
Keep away from heat and sources of ignition.  
Take precautionary measures against static discharges.  
Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep in properly labelled containers. Protect from moisture. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition.

Advice on common storage : Do not store with the following product types:  
Strong oxidizing agents  
Organic peroxides  
Explosives  
Gases

Storage class (TRGS 510) : 10, Combustible liquids

Storage period : 12 Months

### 7.3 Specific end use(s)

Specific use(s) : No data available

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
polyvinyl chloride	9002-86-2	AGW (Inhalable fraction)	10 mg/m <sup>3</sup>	DE TRGS 900
Peak-limit: excursion factor (category)	2;(II)			
Further information	General dust value. For this substance no specific occupational exposure limit value is established, since the AGS does not yet have information regarding unspecific action on the respiratory organs in excess of the normal values., Commission for dangerous substances, Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).			
		AGW (Alveolate fraction)	1,25 mg/m <sup>3</sup>	DE TRGS 900

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

Peak-limit: excursion factor (category)	2;(II)			
Xylene	1330-20-7	TWA	50 ppm 221 mg/m <sup>3</sup>	2000/39/EC
Further information	Identifies the possibility of significant uptake through the skin, Indicative			
		STEL	100 ppm 442 mg/m <sup>3</sup>	2000/39/EC
		AGW	100 ppm 440 mg/m <sup>3</sup>	DE TRGS 900
Peak-limit: excursion factor (category)	2;(II)			
Further information	Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., European Union (The EU has established a limit value: deviations in value and peak limit are possible), Skin absorption			
Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	64742-82-1	AGW	300 mg/m <sup>3</sup>	DE TRGS 900
Peak-limit: excursion factor (category)	2;(II)			
Further information	Group exposure limit for hydrocarbon solvent mixtures, Commission for dangerous substances, See also No. 2.9 of the TRGS 900			
		AGW	50 mg/m <sup>3</sup>	DE TRGS 900
Peak-limit: excursion factor (category)	2;(II)			
4,4'-Diphenylmethane diisocyanate	101-68-8	AGW (Vapour and aerosols)	0,05 mg/m <sup>3</sup>	TRGS 430
Peak-limit: excursion factor (category)	1;=2=(I)			
Further information	Sum of vapour and aerosols, The exposure limit is established for monomers. For regulatory details on oligomers and polymers see TRGS 430 'Isocyanate'., airway sensitizing substance			
		AGW (Vapour and aerosols, inhalable fraction)	0,05 mg/m <sup>3</sup>	DE TRGS 900
Peak-limit: excursion factor (category)	1;=2=(I)			
Further information	Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., Sum of vapor and aerosols., The exposure limit is established for monomers. For regulatory details on oligomers and polymers see TRGS 430 'Isocyanate'., Skin absorption, When there is compli-			

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version  
14.3

Revision Date:  
10.10.2019

SDS Number:  
379607-00003

Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

ance with the OEL and biological tolerance values, there is no risk of harming the unborn child, Substance sensitizing through the skin and respiratory system

### Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
Xylene	1330-20-7	xylene: 1,5 mg/l (Blood)	Immediately after exposure or after working hours	TRGS 903
		methylhippuric acid (all isomers): 2 g/l (Urine)	Immediately after exposure or after working hours	TRGS 903

### Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
1,2-Benzenedicarboxylic acid, di-C9-11-branched alkyl esters, C10-rich	Workers	Inhalation	Long-term systemic effects	5,29 mg/m <sup>3</sup>
	Workers	Skin contact	Long-term systemic effects	41,67 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1,3 mg/m <sup>3</sup>
	Consumers	Skin contact	Long-term systemic effects	20,83 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0,75 mg/kg bw/day
Methylene-bis-4,1-(N-phenylene-N'-butylurea)	Workers	Inhalation	Long-term systemic effects	11,7 mg/m <sup>3</sup>
	Workers	Inhalation	Acute systemic effects	141 mg/m <sup>3</sup>
	Workers	Skin contact	Long-term systemic effects	3,3 mg/kg bw/day
	Workers	Skin contact	Acute systemic effects	40 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	2,5 mg/m <sup>3</sup>
	Consumers	Inhalation	Acute systemic effects	30 mg/m <sup>3</sup>
	Consumers	Skin contact	Long-term systemic effects	1,6 mg/kg bw/day
	Consumers	Skin contact	Acute systemic effects	20 mg/kg bw/day
Carbon black	Consumers	Ingestion	Long-term systemic effects	1,6 mg/kg bw/day
	Consumers	Ingestion	Acute systemic effects	20 mg/kg bw/day
	Workers	Inhalation	Long-term local effects	0,5 mg/m <sup>3</sup>



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version  
14.3

Revision Date:  
10.10.2019

SDS Number:  
379607-00003

Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

Xylene	Workers	Inhalation	Long-term systemic effects	221 mg/m <sup>3</sup>
	Workers	Inhalation	Acute systemic effects	442 mg/m <sup>3</sup>
	Workers	Inhalation	Long-term local effects	221 mg/m <sup>3</sup>
	Workers	Inhalation	Acute local effects	442 mg/m <sup>3</sup>
	Workers	Skin contact	Long-term systemic effects	212 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	65,3 mg/m <sup>3</sup>
	Consumers	Inhalation	Acute systemic effects	260 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term local effects	65,3 mg/m <sup>3</sup>
	Consumers	Inhalation	Acute local effects	260 mg/m <sup>3</sup>
	Consumers	Skin contact	Long-term systemic effects	125 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	12,5 mg/kg bw/day
Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	Workers	Inhalation	Long-term systemic effects	330 mg/m <sup>3</sup>
	Workers	Skin contact	Long-term systemic effects	44 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	71 mg/m <sup>3</sup>
	Consumers	Skin contact	Long-term systemic effects	26 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	26 mg/kg bw/day
4,4'-Diphenylmethane diisocyanate	Workers	Inhalation	Long-term local effects	0,05 mg/m <sup>3</sup>
	Workers	Inhalation	Acute local effects	0,1 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term local effects	0,025 mg/m <sup>3</sup>
	Consumers	Inhalation	Acute local effects	0,05 mg/m <sup>3</sup>

### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Methylene-bis-4,1-(N-phenylene-N'-butylurea)	Fresh water	0,1 mg/l
	Marine water	0,01 mg/l
	Intermittent use/release	1 mg/l
	Sewage treatment plant	1 mg/l
	Fresh water sediment	16,61 mg/kg
	Marine sediment	1,66 mg/kg
	Soil	19,83 mg/kg
	Oral (Secondary Poisoning)	66670000 mg/kg food
Carbon black	Fresh water	1 mg/l
	Freshwater - intermittent	10 mg/l

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

	Marine water	0,1 mg/l
	Marine water - intermittent	1 mg/l
Xylene	Fresh water	0,327 mg/l
	Intermittent use/release	0,327 mg/l
	Marine water	0,327 mg/l
	Sewage treatment plant	6,58 mg/l
	Fresh water sediment	12,46 mg/kg dry weight (d.w.)
	Marine sediment	12,46 mg/kg dry weight (d.w.)
	Soil	2,31 mg/kg dry weight (d.w.)
4,4'-Diphenylmethane diisocyanate	Fresh water	1 mg/l
	Marine water	0,1 mg/l
	Intermittent use/release	10 mg/l
	Sewage treatment plant	1 mg/l
	Soil	1 mg/kg

### 8.2 Exposure controls

#### Engineering measures

Processing may form hazardous compounds (see section 10).  
Ensure adequate ventilation, especially in confined areas.  
Minimize workplace exposure concentrations.

#### Personal protective equipment

Eye protection : Wear the following personal protective equipment:  
Safety glasses  
Equipment should conform to DIN EN 166

#### Hand protection

Material : Fluorinated rubber  
Break through time : > 30 min  
Glove thickness : 0,4 mm  
Directive : Equipment should conform to DIN EN 374

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.  
Wear the following personal protective equipment:  
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.  
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version	Revision Date:	SDS Number:	Date of last issue: 27.02.2019
14.3	10.10.2019	379607-00003	Date of first issue: 11.06.2010

---

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection. Equipment should conform to DIN EN 133

Filter type : Combined particulates and organic vapour type (A-P)

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### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Appearance	:	paste
Colour	:	black
Odour	:	characteristic
Odour Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	76 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	ca. 1,26 g/cm <sup>3</sup> (20 °C)
Solubility(ies)	:	
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	Not applicable

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version	Revision Date:	SDS Number:	Date of last issue: 27.02.2019
14.3	10.10.2019	379607-00003	Date of first issue: 11.06.2010

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity  
Viscosity, kinematic : > 20,5 mm<sup>2</sup>/s (40 °C)

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

### 9.2 Other information

Flammability (liquids) : Ignitable (see flash point)

Particle size : Not applicable

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Not classified as a reactivity hazard.

### 10.2 Chemical stability

Stable if used as directed. Follow precautionary advice and avoid incompatible materials and conditions.

Polymerises at high temperatures with evolution of carbon dioxide.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : Combustible liquid.  
Vapours may form explosive mixture with air.  
Isocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact; these reactions can become violent. Contact is increased by stirring or if the other material mixes with the isocyanate.  
Exothermic reaction with acids, amines and alcohols  
Reacts with water to form carbon dioxide and heat  
Isocyanates are not soluble in water and sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea.  
Hazardous decomposition products will be formed upon contact with water or humid air.

### 10.4 Conditions to avoid

Conditions to avoid : Exposure to moisture  
Heat, flames and sparks.

### 10.5 Incompatible materials

Materials to avoid : Oxidizing agents  
Acids  
Bases  
Water  
Alcohols  
Amines

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
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Ammonia  
Aluminium  
Zinc  
Brass  
Tin  
Copper  
Galvanised metals  
Humid air

### 10.6 Hazardous decomposition products

No hazardous decomposition products are known.

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation  
Skin contact  
Ingestion  
Eye contact

#### Acute toxicity

Not classified based on available information.

#### Product:

Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2.000 mg/kg  
Method: Calculation method

#### Components:

##### **Methylene-bis-4,1-(N-phenylene-N'-butylurea):**

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg

##### **Xylene:**

Acute oral toxicity : LD50 (Rat): 3.523 mg/kg  
Method: Directive 67/548/EEC, Annex V, B.1.

Acute inhalation toxicity : Acute toxicity estimate: 11 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: Expert judgement  
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute dermal toxicity : Acute toxicity estimate: 1.100 mg/kg

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

Method: Expert judgement  
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

### Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):

Acute oral toxicity : LD50 (Rat): > 15.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 13,1 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rat): > 3.400 mg/kg

### 4,4'-Diphenylmethane diisocyanate:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg  
Assessment: The substance or mixture has no acute oral toxicity  
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 2,24 mg/l  
Exposure time: 1 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 5.000 mg/kg  
Remarks: Based on data from similar materials

### Skin corrosion/irritation

Not classified based on available information.

### Components:

#### Methylene-bis-4,1-(N-phenylene-N'-butylurea):

Species : Rabbit  
Result : No skin irritation

#### Xylene:

Species : Rabbit  
Result : Skin irritation

### Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

Assessment : Repeated exposure may cause skin dryness or cracking.

### 4,4'-Diphenylmethane diisocyanate:

Species : Rabbit  
Method : OECD Test Guideline 404

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

Result : Skin irritation  
Remarks : Based on data from similar materials

### Serious eye damage/eye irritation

Not classified based on available information.

#### Components:

##### **Methylene-bis-4,1-(N-phenylene-N'-butylurea):**

Species : Rabbit  
Result : No eye irritation

##### **Xylene:**

Species : Rabbit  
Result : Irritation to eyes, reversing within 21 days

##### **Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):**

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : No eye irritation

##### **4,4'-Diphenylmethane diisocyanate:**

Result : Irritation to eyes, reversing within 7 days  
Remarks : Based on harmonised classification in EU regulation 1272/2008, Annex VI

### Respiratory or skin sensitisation

#### **Skin sensitisation**

Not classified based on available information.

#### **Respiratory sensitisation**

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

#### Components:

##### **Methylene-bis-4,1-(N-phenylene-N'-butylurea):**

Exposure routes : Skin contact  
Species : Guinea pig  
Result : negative

##### **Xylene:**

Test Type : Local lymph node assay (LLNA)  
Exposure routes : Skin contact  
Species : Mouse  
Result : negative

##### **Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):**

Test Type : Maximisation Test  
Exposure routes : Skin contact

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : negative

### **4,4'-Diphenylmethane diisocyanate:**

Test Type : Buehler Test  
Exposure routes : Skin contact  
Species : Guinea pig  
Result : positive

Assessment : Probability or evidence of skin sensitisation in humans

Exposure routes : Inhalation  
Species : Rat  
Result : positive  
Remarks : Based on data from similar materials

Assessment : Probability of respiratory sensitisation in humans based on animal testing

### **Germ cell mutagenicity**

Not classified based on available information.

### **Components:**

#### **Methylene-bis-4,1-(N-phenylene-N'-butylurea):**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Genotoxicity in vivo : Species: Rat  
Application Route: Skin contact  
Result: negative

#### **Xylene:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Test Type: Chromosome aberration test in vitro  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Result: negative

Test Type: In vitro sister chromatid exchange assay in mammalian cells  
Result: negative

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)  
Species: Mouse  
Application Route: Skin contact  
Result: negative



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

### Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro  
Result: negative

Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

### 4,4'-Diphenylmethane diisocyanate:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Rat  
Application Route: inhalation (dust/mist/fume)  
Method: OECD Test Guideline 474  
Result: negative

### Carcinogenicity

Not classified based on available information.

### Components:

#### Xylene:

Species : Rat  
Application Route : Ingestion  
Exposure time : 103 weeks  
Result : negative

### Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):

Species : Rat  
Application Route : inhalation (vapour)  
Exposure time : 105 weeks  
Result : negative  
Remarks : Based on data from similar materials

### 4,4'-Diphenylmethane diisocyanate:

Species : Rat  
Application Route : inhalation (dust/mist/fume)  
Exposure time : 2 Years  
Result : positive  
Remarks : Based on data from similar materials

Carcinogenicity - Assess- : Limited evidence of carcinogenicity in animal studies

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

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### Reproductive toxicity

Not classified based on available information.

### Components:

#### **Methylene-bis-4,1-(N-phenylene-N'-butylurea):**

Effects on fertility : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on foetal development : Species: Rabbit  
Application Route: Ingestion  
Result: negative

#### **Xylene:**

Effects on fertility : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative

#### **Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):**

Effects on fertility : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative  
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative

#### **4,4'-Diphenylmethane diisocyanate:**

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: inhalation (dust/mist/fume)  
Result: negative  
Remarks: Based on data from similar materials

### **STOT - single exposure**

Not classified based on available information.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

### Components:

#### **Xylene:**

Assessment : May cause respiratory irritation.

#### **Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):**

Assessment : May cause drowsiness or dizziness.

#### **4,4'-Diphenylmethane diisocyanate:**

Assessment : May cause respiratory irritation.

### **STOT - repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

### Components:

#### **Xylene:**

Exposure routes : inhalation (vapour)  
Target Organs : Auditory system  
Assessment : Shown to produce significant health effects in animals at concentrations of >0.2 to 1 mg/l/6h/d.

#### **Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):**

Exposure routes : Inhalation  
Target Organs : Central nervous system  
Assessment : Causes damage to organs through prolonged or repeated exposure.

#### **4,4'-Diphenylmethane diisocyanate:**

Exposure routes : inhalation (dust/mist/fume)  
Target Organs : Respiratory Tract  
Assessment : Shown to produce significant health effects in animals at concentrations of >0.02 to 0.2 mg/l/6h/d.

### **Repeated dose toxicity**

### Components:

#### **Methylene-bis-4,1-(N-phenylene-N'-butylurea):**

Species : Rat  
NOAEL : 1.000 mg/kg  
Application Route : Ingestion

#### **Xylene:**

Species : Rat  
LOAEL : > 0,2 - 1 mg/l  
Application Route : inhalation (vapour)  
Exposure time : 13 Weeks  
Remarks : Based on data from similar materials

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

Species : Rat  
LOAEL : 150 mg/kg  
Application Route : Ingestion  
Exposure time : 90 Days

### Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):

Species : Rat  
NOAEL : 1.056 mg/kg  
Application Route : Ingestion  
Exposure time : 90 Days

Species : Rat  
NOAEL : 3,950 mg/l  
LOAEL : 7,400 mg/l  
Application Route : Inhalation  
Exposure time : 90 Days

### 4,4'-Diphenylmethane diisocyanate:

Species : Rat  
NOAEL : 0,2 mg/m<sup>3</sup>  
LOAEL : 1 mg/m<sup>3</sup>  
Application Route : inhalation (dust/mist/fume)  
Exposure time : 2 yr  
Remarks : Based on data from similar materials

### Aspiration toxicity

Not classified based on available information.

### Components:

#### Xylene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

### Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

### Experience with human exposure

### Components:

### Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):

Inhalation : Symptoms: central nervous system effects

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

### SECTION 12: Ecological information

#### 12.1 Toxicity

##### Components:

##### **Methylene-bis-4,1-(N-phenylene-N'-butylurea):**

- Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 250 mg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l  
Exposure time: 48 h
- Toxicity to algae/aquatic plants : NOEC (Desmodesmus subspicatus (green algae)): 100 mg/l  
Exposure time: 72 h
- Toxicity to microorganisms : IC50 : > 100 mg/l  
Exposure time: 3 h

##### **Xylene:**

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 13,5 mg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l  
Exposure time: 24 h  
Method: OECD Test Guideline 202  
Remarks: Based on data from similar materials
- Toxicity to algae/aquatic plants : EC50 (Skeletonema costatum (marine diatom)): 10 mg/l  
Exposure time: 72 h
- Toxicity to microorganisms : NOEC : > 100 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209  
Remarks: Based on data from similar materials
- Toxicity to fish (Chronic toxicity) : NOEC: > 0,1 - < 1 mg/l  
Exposure time: 35 d  
Species: Danio rerio (zebra fish)  
Method: OECD Test Guideline 210  
Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EL10: > 1 - 10 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211  
Remarks: Based on data from similar materials

##### **Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):**

- Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): > 10 - 30 mg/l  
Exposure time: 96 h  
Test substance: Water Accommodated Fraction

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): > 10 - 22 mg/l  
Exposure time: 48 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): 4,1 mg/l  
Exposure time: 72 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 201

NOELR (Pseudokirchneriella subcapitata (green algae)): 0,76 mg/l  
Exposure time: 72 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,097 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 211  
Remarks: Based on data from similar materials

### 4,4'-Diphenylmethane diisocyanate:

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): > 3.000 mg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 129,7 mg/l  
Exposure time: 24 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 1.640 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: Based on data from similar materials

NOEC (Desmodesmus subspicatus (green algae)): 1.640 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: Based on data from similar materials

Toxicity to microorganisms : EC50 : > 100 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic) : NOEC: 10 mg/l  
Exposure time: 21 d

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

ic toxicity)      Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211  
Remarks: Based on data from similar materials

### 12.2 Persistence and degradability

#### Components:

##### **Methylene-bis-4,1-(N-phenylene-N'-butylurea):**

Biodegradability      :    Result: Not readily biodegradable.  
Biodegradation: 11 %  
Exposure time: 28 d

##### **Xylene:**

Biodegradability      :    Result: Readily biodegradable.  
Biodegradation: > 70 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F  
Remarks: Based on data from similar materials

##### **Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):**

Biodegradability      :    Result: Readily biodegradable.  
Biodegradation: 75,9 %  
Exposure time: 31 d  
Method: OECD Test Guideline 301F  
Remarks: Based on data from similar materials

##### **4,4'-Diphenylmethane diisocyanate:**

Biodegradability      :    Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: OECD Test Guideline 302  
Remarks: Based on data from similar materials

### 12.3 Bioaccumulative potential

#### Components:

##### **Methylene-bis-4,1-(N-phenylene-N'-butylurea):**

Partition coefficient: n-      :    log Pow: 5,5  
octanol/water

##### **Xylene:**

Partition coefficient: n-      :    log Pow: 3,16  
octanol/water      Remarks: Calculation

##### **Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):**

Partition coefficient: n-      :    Pow: > 4  
octanol/water

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version	Revision Date:	SDS Number:	Date of last issue: 27.02.2019
14.3	10.10.2019	379607-00003	Date of first issue: 11.06.2010

---

### 4,4'-Diphenylmethane diisocyanate:

Bioaccumulation : Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): 200

Partition coefficient: n-octanol/water : log Pow: 4,51

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

Not relevant

### 12.6 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.  
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.  
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Empty containers retain residue and can be dangerous.  
Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.  
If not otherwise specified: Dispose of as unused product.

Waste Code : The following Waste Codes are only suggestions:

used product  
08 05 01, waste isocyanates

unused product  
08 05 01, waste isocyanates

uncleaned packagings  
15 01 10, packaging containing residues of or contaminated by hazardous substances

Acc. Packaging Ordinance properly emptied packaging:  
Properly emptied, non-contaminated packaging of non-hazardous products can be supplied to a system for the collection of sales packaging.



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

### SECTION 14: Transport information

#### 14.1 UN number

Not regulated as a dangerous good

#### 14.2 UN proper shipping name

Not regulated as a dangerous good

#### 14.3 Transport hazard class(es)

Not regulated as a dangerous good

#### 14.4 Packing group

Not regulated as a dangerous good

#### 14.5 Environmental hazards

Not regulated as a dangerous good

#### 14.6 Special precautions for user

Not applicable

#### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Remarks : Not applicable for product as supplied.

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### SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:  
Number on list 3

1,2-Benzenedicarboxylic acid, di-C9-11-branched alkyl esters, C10-rich (Number on list 52)  
4,4'-Diphenylmethane diisocyanate (Number on list 56)

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version	Revision Date:	SDS Number:	Date of last issue: 27.02.2019
14.3	10.10.2019	379607-00003	Date of first issue: 11.06.2010

---

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

Water contaminating class (Germany) : WGK 1 slightly hazardous to water  
Classification according to AwSV, Annex 1 (5.2)

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)  
Volatile organic compounds (VOC) content: 3,42 %

### Other regulations:

Take note of Law on the protection of mothers at work, in education and in studies (Maternity Protection Act - MuSchG).

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

TRGS 430 (German regulatory requirements)

### 15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

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### SECTION 16: Other information

Other information : Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

#### Full text of H-Statements

H226 : Flammable liquid and vapour.  
H304 : May be fatal if swallowed and enters airways.  
H312 : Harmful in contact with skin.  
H315 : Causes skin irritation.  
H317 : May cause an allergic skin reaction.  
H319 : Causes serious eye irritation.  
H332 : Harmful if inhaled.  
H334 : May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335 : May cause respiratory irritation.  
H336 : May cause drowsiness or dizziness.  
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.  
H374 : May cause damage to organs through prolonged or repeated exposure if inhaled.  
H411 : Toxic to aquatic life with long lasting effects.  
H412 : Harmful to aquatic life with long lasting effects.  
H413 : May cause long lasting harmful effects to aquatic life.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version 14.3      Revision Date: 10.10.2019      SDS Number: 379607-00003      Date of last issue: 27.02.2019  
Date of first issue: 11.06.2010

---

### Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Asp. Tox.	:	Aspiration hazard
Carc.	:	Carcinogenicity
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
Resp. Sens.	:	Respiratory sensitisation
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure
2000/39/EC	:	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
DE TRGS 900	:	Germany. TRGS 900 - Occupational exposure limit values.
TRGS 430	:	Germany. TRGS 430 - Isocyanates
TRGS 903	:	TRGS 903 - Biological limit values
2000/39/EC / TWA	:	Limit Value - eight hours
2000/39/EC / STEL	:	Short term exposure limit
DE TRGS 900 / AGW	:	Time Weighted Average
TRGS 430 / AGW	:	Occupational Exposure Limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Sub-

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## BOND + SEAL BLACK - 400 ML

Version	Revision Date:	SDS Number:	Date of last issue: 27.02.2019
14.3	10.10.2019	379607-00003	Date of first issue: 11.06.2010

---

stances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### Further information

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

### Classification of the mixture:

Resp. Sens. 1	H334
STOT RE 2	H373

### Classification procedure:

Calculation method
Calculation method

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