

# BB&G AWES Pyrolysis Oil

## Material Safety Data Sheet ("MSDS")

### 1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING

#### 1.1. Product identifier

Trade name: Black Belt renewable Fuel  
Registration number: (not relevant, mixture)

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

Relevant identified uses: Industrial use, refinery feedstock, tyre oil feedstock, carbon black feedstock, combustibles feedstock

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

BB&G - Alternative Worldwide Environmental Solutions Lda  
FAO Germano Carreira  
Avenida Dom Jose Alves Correia Da Silva 2 E Rotunda Sul,  
2495-402 Fátima  
Portugal  
Phone: +351 912 029 396 eMail: germano@bbgenv.com

#### 1.4. Emergency telephone number

24h emergency information service: +351 912 029 396

### 2. HAZARDS IDENTIFICATION

#### 2.1. Classification of the mixture and Warning H statements:

Classification according to Regulation 1272/2008/EC (CLP):

Classification	Warning H statements
Flammable Liquid 2	H225 Highly flammable liquid and vapour.
Acute Toxicity 4	H332 Harmful if inhaled.
Skin Irritation 2	H315 Causes skin irritation.
Eye Irritation 2	H319 Causes serious eye irritation.
Mutagenicity 1B	H340 May cause genetic defects.
Carcinogenicity 1A	H350 May cause cancer.
Reproductive toxicity 2	H361d Suspected of damaging the unborn child.
STOT RE <sup>1</sup> 1	H372-H373 Causes damage to the hearing organs through prolonged or repeated exposure. May cause damage to the central nervous system and the hearing organs through prolonged or repeated exposure. Route of exposure: Inhalation.
Aspiration Toxicity 1	H304 May be fatal if swallowed and enters airways.
Aquatic Chronic Tox. 2	H411 Toxic to aquatic life with long lasting effects.

<sup>1</sup> STOT RE = Specific Target Organ Toxicity, Repeated Exposure

## 2.2. Label elements according to Regulation 1272/2008/EC (CLP)

The product is classified and labelled according to the CLP regulation.

**Signal word:**

**Danger**

**Hazard-determining components of labelling:** Xylene, benzene, styrene, naphthalene

**Hazard pictograms:**



GHS02



GHS07



GHS08



GHS09

**Precautionary P statements:**

- P210** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P241** Use explosion-proof electrical/ventilating/lighting/equipment.
- P260** Do not breathe dust/fume/gas/mist/vapours/spray.
- P301+P310** IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P303+P361+P353** IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P305+P351+P338** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P405** Store locked up.
- P501** Dispose of contents/container in accordance with local/regional/national/international regulations.

## 2.3. Other hazards

PBT<sup>2</sup> or vPvB<sup>3</sup> assessment not determined.

<sup>2</sup> PBT = Persistent, bioaccumulative and toxic

<sup>3</sup> vPvB = Very Persistent, Very Bioaccumulative

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

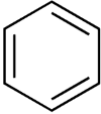
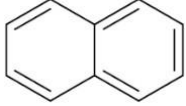
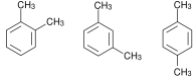
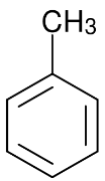
#### 3.1. Substance: UVCB substance

A complex combination of hydrocarbons with mono-aromatic hydrocarbons, di-aromatic hydrocarbons, tri-aromatic hydrocarbons and higher, cycloalkenes, mono-naphthenics, di-naphthenics, normal paraffins and unknown constituents. Sulphur can be present.

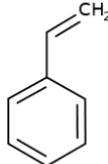

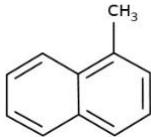
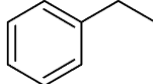
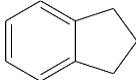
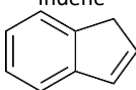
Description	EC number	REACH registration	Conc. % wt.	Classification acc. to 1272/2008/EC (CLP)	
				Classification	H cat.
Pyrolysis oil from waste rubbers and tires	948-949-8	01-2120793111-61-0000	100%	No chemical safety assessment has been performed for this substance.	

#### 3.2. Chemical characterisation:

##### Dangerous components:

Description	CAS number	EINECS number	REACH registration	Conc. % wt.	Classification acc. to 1272/2008/EC (CLP)	
					Classification	H cat.
Benzene 	71-43-2	200-753-7	01-2119447106-44	1-10%	Flam. Liq. 2 Muta. 1B Carc. 1A STOT RE 1 Asp. Tox. 1 Skin Irrit. 2 Eye Irrit. 2	H225 H340 H350 H372 H304 H315 H319
Naphthalene 	91-20-3	202-049-5	01-2119561346-37	0,5-5%	Flam. Sol. 2 Carc. 2 Aquatic Acute 1 Aquatic Chronic 1 Acute Tox. 4	H228 H351 H400 H410 H302
Xylene 	1330-20-7	215-535-7	01-2119488216-32	1-8%	Flam. Liq. 3 STOT RE 2 Asp. Tox. 1 Acute Tox. 4 Acute Tox. 4 Skin Irrit. 2 Eye Irrit. 2 STOT SE 3 <sup>4</sup>	H226 H373 H304 H312 H332 H315 H319 H335
Toluene 	108-88-3	203-625-9	01-2119471310-51	0,5-5%	Flam. Liq. 2 Repr. 2 STOT RE 2 Asp. Tox. 1 Skin Irrit. 2 STOT SE 3 Aquatic Chronic 3	H225 H361d H373 H304 H315 H336 H412

<sup>4</sup> STOT SE = Specific Target Organ Toxicity, Single Exposure

Description	CAS number	EINECS number	REACH registration	Conc. % wt.	Classification acc. to 1272/2008/EC (CLP)	
					Classification	H cat.
Styrene 	100-42-5	202-851-5	01-2119457861-32	1-5%	Flam. Liq. 3 Repr. 2 STOT RE 1 Acute Tox. 4 Skin Irrit. 2 Eye Irrit. 2	H226 H361d H372 H332 H315 H319
Pentane 	109-66-0	203-692-4	01-2119459286-30	1-5%	Flam. Liq. 2 Asp. Tox. 1 Aquatic Chronic 2 STOT SE 3	H225 H304 H411 H336
1-methylnaphtalene 	90-12-0	201-966-8	-	0,5-5%	Asp. Tox. 1 Acute Tox. 4	H304 H302
Ethylbenzene 	100-41-4	202-849-4	01-2119489370-35	0-4%	Flam. Liq. 2 STOT RE 2 Asp. Tox. 1 Acute Tox. 4 Aquatic Chronic 3	H225 H373 H304 H332 H412
Indane 	496-11-7	207-814-7	-	0.5-3%	Flam. Liq. 3, H226; Asp. Tox. 1, H304	
Indene 	95-13-6	202-393-6	-	0.5-3%	Flam. Liq. 3, H226; Asp. Tox. 1, H304	

## 4. FIRST AID MEASURES

### 4.1. Description of first aid measures



#### General advice:

Take affected people out of danger area and lay down. Immediately remove any clothing soiled by the product. In case of irregular breathing or respiratory arrest provide artificial respiration.

#### In case of ingestion:

Rinse mouth with water. Drink plenty of water. Do not induce vomiting. Call for a doctor immediately.

- In case of inhalation:** Take the victim into fresh air. If required, provide artificial respiration. Keep victim warm and rested. In case of unwellness or unconsciousness obtain medical help and place victim in stable side position.
- In case of skin contact:** Immediately wash the skin surface with plenty of water and soap (for 15 minutes). Remove and wash contaminated clothing. In case of skin irritation or rashes obtain medical help.
- In case of eye contact:** Rinse with water holding eyelids apart and moving the eyeballs (for at least 10 – 15 minutes). Remove contact lenses if present and possible. Continue rinsing. Get medical help.

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

Skin contact may cause skin irritation.  
Contact with eyes can cause irritation.

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

First aid, decontamination, symptomatic treatment.

### 5. FIREFIGHTING MEASURES



#### 5.1. Extinguishing media

##### 5.1.1. Suitable extinguishing media:

CO<sub>2</sub>, sand, extinguishing powder or foam. Do not use water.  
Use fire extinguishing methods suitable to surrounding conditions.

##### 5.1.2. Unsuitable extinguishing media:

Do not use full water jet.

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

The inhalation of combustion products (e.g. carbon monoxide, carbon dioxide, nitrogen oxides, sulphur oxides) can have serious adverse effects on health.

#### 5.3. Advise for firefighters

Wear full protective chemical resistant clothing and self-contained breathing apparatus. The extinguishing water should not be allowed to drains, soil or watercourses.

Remove product from danger area. Cool closed containers affected by the fire with water spray.

## 6. ACCIDENTAL RELEASE MEASURES

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

#### 6.1.1. For non-emergency personnel:

Keep mixture away from ignition sources.

Keep unprotected people away from accidents, allow only well-trained experts wearing suitable protective clothing to work in the field of accident.

#### 6.1.2. For emergency responders:

Avoid contact with skin, eyes and clothing.

Do not breathe fumes/gases/mist/vapours/spray.

Wear appropriate respiratory protection.

Wear appropriate personal protective equipment (see Section 8).

### 6.2. Environmental precautions

Avoid release to the environment. Dispose the spillage and the resulting waste according to the applicable environmental regulations. Do not allow the product and the resulting waste to enter sewers/soil/surface or ground water. Contain and dispose contaminated washing water.

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

Ensure adequate ventilation. Adsorb with liquid-binding material (sand, diatomite, acid binders, universal binders or sawdust). Do not flush with water or aqueous cleaning agents. Dispose of collected material according to regulations.

### 6.4. Reference to other sections

For further and detailed information see sections 7 (safe handling), 8 (personal protection equipment and 13 (disposal information).

## 7. HANDLING AND STORAGE

### 7.1. Precautions for safe handling:

Ensure good ventilation and good exhaustion at the workplace. Open and handle receptacle with care. Prevent formation of aerosols.

#### Information about fire and explosion protection:

Keep ignition sources away - do not smoke. Provide respiratory protective devices.

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

### Requirements for warehouses and container:

Store in cool location. Protect from heat and direct sunlight.

Store in well sealed original container

Store away from oxidising agents

Do not seal container gas tight.

## 7.3. Specific end use(s)

No further relevant information available.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### Ingredients with limit values that require monitoring at the workplace:

Description	CAS number	Type	Region / country	Short term exposure limit STEL (15 minutes)	Long term exposure limit LTEL, Time weighted Average TWA (8 hours)	Additional info
Benzene	71-43-2	WEL <sup>5</sup>	UK		3,25 mg/m <sup>3</sup> , 1 ppm	Carc <sup>6</sup> , Sk <sup>7</sup>
Naphthalene	91-20-3	IOELV <sup>8</sup>	EU		30 mg/m <sup>3</sup> 10 ppm	
Xylene	1330-20-7	WEL <sup>3</sup>	UK	441 mg/m <sup>3</sup> 100 ppm	220 mg/m <sup>3</sup> 50 ppm	Sk <sup>5</sup> , BMGV <sup>7</sup>
		IOELV <sup>6</sup>	EU	442 mg/m <sup>3</sup> 100 ppm	221 mg/m <sup>3</sup> 50 ppm	Sk <sup>5</sup>
Toluene	108-88-3	WEL <sup>3</sup>	UK	384 mg/m <sup>3</sup> 100 ppm	191 mg/m <sup>3</sup> 50 ppm	Sk <sup>5</sup>
Styrene	100-42-5	WEL <sup>3</sup>	UK	1.080 mg/m <sup>3</sup> 250 ppm	430 mg/m <sup>3</sup> 100 ppm	
Pentane	109-66-0	WEL <sup>3</sup>	UK		1.800 mg/m <sup>3</sup> 600 ppm	
		IOELV <sup>6</sup>	EU		3.000 mg/m <sup>3</sup> 1.000 ppm	
Ethylbenzene	100-41-4	WEL <sup>3</sup>	UK	552 mg/m <sup>3</sup> 125 ppm	441 mg/m <sup>3</sup> 100 ppm	Sk <sup>5</sup>
		IOELV <sup>6</sup>	EU	884 mg/m <sup>3</sup> 200 ppm	442 mg/m <sup>3</sup> 100 ppm	Sk <sup>5</sup>
Indene	95-13-6	UK	EU	72 mg/m <sup>3</sup> 15 ppm	48 mg/m <sup>3</sup> 10 ppm	

<sup>5</sup> WEL = Workplace Exposure Limits

<sup>6</sup> Carc = Capable of causing cancer and/or heritable genetic damage

<sup>7</sup> Sk = Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.

<sup>8</sup> IOEL = Indicative Occupational Exposure Limits

### Ingredients with biological limit values:

Description	CAS number	Type	Region / country	Limit
Xylene	1330-20-7	BMGV <sup>9</sup>	UK	650 mmol/mol creatine Medium: Urine Sampling time: Post shift Parameter: Methyl hippuric acid

## 8.2. Exposure controls

It is the employer's duty to keep concentration levels down to a minimum achievable by existing technological means. Avoid leaking onto clothing and floors.

### 8.2.1. Appropriate engineering controls

Handle product in a closed system and use local and general ventilation.

### 8.2.2. Individual protection measures (personal protective equipment)

#### General protective and hygienic measures:

Avoid contact with skin, eyes and clothes.

Remove and wash contaminated clothing before reuse.

Do not eat, drink, or smoke at work.

Keep away from food, beverages or animal feed.

Wash hands before breaks and at end of work.

Adhere to usual precautionary measures when handling chemicals.

#### Respiratory protection:

In case of short exposure or low pollution use a respiratory filter type A. In case of longer exposure or intensive pollution use protective self-contained respiratory device.

#### Eye/face protection:



Use appropriate tightly sealed goggles.

<sup>9</sup> BMGV = Biological Monitoring Guidance Value



### Protection of hands:



Wear protective fluorocarbon rubber (e.g. Viton) gloves which are impermeable and resistant to the product. The selection of the glove material has to be made considering penetration times, rates of diffusion and degradation.

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.

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. Value for the permeation: Level  $\geq 6$

### Body protection:

Protective work clothing

#### 8.2.3. Environmental exposure controls

No specific prescription. The requirements detailed in Section 8 assume skilled work under normal conditions and usage of the product for appropriate aims. If conditions differ from normal or work is carried out under extreme conditions an expert's advice should be sought out before deciding upon further protective measures.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties of the mixture

Property	Information
Physical state	Liquid
Colour	Light brown
Odour	Like mineral oil
pH value	Not determined
Acid number, ASTM D 664-18e1	2,6 – 14,7 mg KOH/g
Melting point	Not determined
Freezing point	Not determined
Boiling point and boiling range	70-360°C
Flash point	< -20°C (closed cup)
Evaporation rate	Not determined
Flammability (solid, gas)	N/A
Ignition temperature	>200°C
Decomposition temperature	Not determined
Self-ignition	Not self-igniting
Explosive properties	Product is not explosive. Formation of explosive air/vapour mixtures is possible.
Explosion limits	Lower: Not determined Upper: Not determined

Property	Information
Oxidising properties	None
Vapour pressure	Not determined
Specific gravity, UNI EN ISO 12185:1999, 15°C	700 – 950 kg/m <sup>3</sup>
Dynamic viscosity	Not determined
Kinematic viscosity, UNI EN ISO 3104:2000, 50°C	1,183 – 13,92 mm <sup>2</sup> /s

## 9.2. Other information

No further information available.

## 10. STABILITY AND REACTIVITY

### 10.1. Reactivity:

Stable within normal storage and handling conditions at ambient temperature.

### 10.2. Chemical stability:

Stable within normal storage and handling conditions at ambient temperature.

### 10.3. Possibility of hazardous reactions:

Avoid contact with oxidising agents. No further dangerous reactions known.

### 10.4. Conditions to avoid:

Keep away from ignition sources, heat and direct sunlight.

### 10.5. Incompatible materials:

Reacts with strong oxidising agents.

### 10.6. Hazardous decomposition products:

No dangerous decomposition products known.

## 11. TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects:

#### Acute toxicity:

Harmful if inhaled.

#### Acute toxicity of components of the mixture

Description	CAS number	Value	Organism	Exposure route	Endpoint
Benzene	71-43-2	>2.000 ppm	Rat	Oral (OECD Guideline 401)	LD <sub>50</sub> <sup>10</sup>
		8260 ppm	Rabbit	Dermal (OECD Guideline 402)	LD <sub>50</sub> <sup>10</sup>
		43,767 mg/l	Rat	Respiratory, vapour (OECD Guideline 402)	LC <sub>50, 4h</sub> <sup>11</sup>
Naphthalene	91-20-3	533 ppm	Rat	Oral (OECD Guideline 401)	LD <sub>50</sub> <sup>10</sup>
		>2500 ppm	Rat	Dermal (OECD Guideline 402)	LD <sub>50</sub> <sup>10</sup>
		>0,4 mg/l	Rat	Respiratory, vapour (OECD Guideline 402)	LC <sub>50, 4h</sub> <sup>11</sup>
Xylene	1330-20-7	3.523 ppm	Rat (male)	Oral (EU method B.1)	LD <sub>50</sub> <sup>10</sup>
		>4.200 ppm	Rabbit	Dermal (OECD Guideline 402)	LD <sub>50</sub> <sup>10</sup>
		29.091 mg/l	Rat	Respiratory, vapour (EU method B.2)	LC <sub>50, 4h</sub> <sup>11</sup>
Toluene	108-88-3	5.580 ppm	Rat	Oral (EU method B.1)	LD <sub>50</sub> <sup>10</sup>
		12.267 ppm	Rabbit	Dermal (OECD Guideline 402)	LD <sub>50</sub> <sup>10</sup>
		28,1 mg/l	Rat	Respiratory, vapour (OECD Guideline 403)	LC <sub>50, 4h</sub> <sup>11</sup>
Styrene	100-42-5	5.000 ppm	Rat	Oral	LD <sub>50</sub> <sup>10</sup>
		24 mg/l	Rat	Respiratory	LC <sub>50, 4h</sub> <sup>11</sup>
Pentane	109-66-0	21.000 ppmv	Rat	Respiratory	LC <sub>50, 4h</sub> <sup>11</sup>
Ethylbenzene	100-41-4	3.500 ppm	Rat	Oral, standard acute method	LD <sub>50</sub> <sup>10</sup>
		15.400 ppm	Rabbit	Dermal, standard acute method, occlusive	LD <sub>50</sub> <sup>10</sup>
		17,8 mg/l	Rat	Respiratory, vapour	LC <sub>50, 4h</sub> <sup>11</sup>

#### Skin corrosion/irritation:

Causes skin irritation.

#### Serious eye damage/eye irritation:

Causes serious eye irritation.

#### Respiratory or skin sensitisation:

Based on available data, classification criteria are not met.

<sup>10</sup> LD<sub>50</sub> = Median lethal dose = Amount of the substance required per body weight to kill 50% of the test population.

<sup>11</sup> LC<sub>50, 4h</sub> = Median lethal concentration at 4 hours exposure = Concentration of the substance required to kill 50% of the test population at 4 hours exposure

**Germ cell mutagenicity:**

May cause genetic defects

**Carcinogenicity:**

May cause cancer.

**Reproductive toxicity:**

Suspected of damaging the unborn child.

**STOT SE<sup>4</sup>:**

Based on available data, the classification criteria are not met.

**STOT RE<sup>1</sup>:**

Causes damage to the hearing organs through prolonged or repeated exposure. May cause damage to the central nervous system and the hearing organs through prolonged or repeated exposure. Route of exposure: Inhalation.

**Aspiration hazard:**

May be fatal if swallowed and enters airways.

**11.1.1 For substances subject to registration, brief summaries of the information derived from the test conducted:**

No data available.

**11.1.2 Relevant toxicological properties of the hazardous substances:**

No data available.

**11.1.3 Information on likely routes of exposure:**

Eye contact, skin contact, eye contact, ingestion, inhalation

**11.1.4 Symptoms related to the physical, chemical and toxicological characteristics:**

No data available.

**11.1.5 Delayed and immediate effects as well as chronic effects from short and long-term exposure:**

No data available.

**11.1.6 Interactive effects:**

No data available.

**11.1.7 Absence of specific data:**

No information.

**11.1.8 Other information:**

No data available.

## 12. ECOLOGICAL INFORMATION

### 12.1. Toxicity:

#### Aquatic acute toxicity of individual components of the mixture

Description	CAS number	Value	Organism	Exposure time, method	Endpoint
Benzene	71-43-2	5,3 mg/l	Fish (Oncorhynchus mykiss)	96h, dynamic (OECD Guideline 203)	LC <sub>50</sub> <sup>10</sup>
		10 mg/l	Daphnia (Daphnia Magna)	48h, static (OECD Guideline 202)	EC <sub>50</sub> <sup>12</sup>
		100 mg/l	Algae (Pseudokirchneriella subcapitata)	72h, static (OECD Guideline 201)	EC <sub>50</sub> <sup>12</sup>
		0,8 mg/l	Fish (Pimephales promelas)	30d, dynamic	NOEC <sup>13</sup>
		3 mg/l	Daphnia (Ceriodaphnia dubia)	7d, Semi-static (US EPA 600/4-91-003)	NOEC <sup>13</sup>
		13 mg/l	Bacteria (Nitrosomonas sp.)	24h, static	IC <sub>50</sub> <sup>14</sup>
Naphthalene	91-20-3	6,08 mg/l	Fish (Pimephales promelas)	96h, dynamic	LC <sub>50</sub> <sup>10</sup>
		2,16 mg/l	Daphnia (Daphnia Magna)	48h, static (OECD Guideline 202)	EC <sub>50</sub> <sup>12</sup>
		0,59 mg/l	Daphnia (Daphnia Pulex)	125d, static	NOEC <sup>13</sup>
		0,37 mg/l	Fish (Oncorhynchus kisutch)	40d, static	NOEC <sup>13</sup>
		29 mg/l	Bacteria (Nitrosomonas and aerobic heterotrophs)	24h, static	IC <sub>50</sub> <sup>14</sup>
Xylene	1330-20-7	2,6 mg/l	Fish (Oncorhynchus mykiss)	96h, static (OECD Guideline 203, read-across)	LC <sub>50</sub> <sup>10</sup>
		1,9 mg/l	Algae (Pseudokirchneriella subcapitata)	73h, static (OECD Guideline 201, read-across)	EC <sub>10</sub> <sup>15</sup>
		96 mg/l	Bacteria (Nitrosomonas sp.)	24h, static (read-across based on substance groupings)	EC <sub>50</sub> <sup>12</sup>
		0,96 mg/l	Daphnia (Ceriodaphnia dubia)	7d (US EPA 600/4-91-003, read-across)	NOEC <sup>13</sup>
		>1,3 mg/l	Fish (Oncorhynchus mykiss)	56d	NOEC <sup>13</sup>
		0,44 mg/l	Algae (Pseudokirchnerella subcapitata)	72h, static (OECD Guideline 201, read-across)	NOEC <sup>13</sup>
		1 mg/l	Daphnia (Daphnia magna)	24h, static (OECD Guideline 202, read-across)	IC <sub>50</sub> <sup>14</sup>

<sup>12</sup> EC<sub>50</sub> = Half maximal effective concentration = Concentration which induces a response halfway between the baseline and maximum after a specified exposure time.

<sup>13</sup> NOEC = No Observed Effect Concentration

<sup>14</sup> IC<sub>50</sub> = Half Maximal Inhibitory Concentration = A measure of the effectiveness of a substance in inhibiting a specific biological or biochemical function.

<sup>15</sup> EC<sub>10</sub> = 10% effective concentration = Concentration which induces a response at 10% between the baseline and maximum after a specified exposure time.

Description	CAS number	Value	Organism	Exposure time, method	Endpoint
Toluene	108-88-3	5,5 mg/l	Fish (Oncorhynchus kisutch)	96h, dynamic	LC <sub>50</sub> <sup>10</sup>
		3,78 mg/l	Daphnia (Ceriodaphnia dubia)	48h (US EPA 600/4-91-003)	EC <sub>50</sub> <sup>12</sup>
		84 mg/l	Bacteria (Nitrosomonas sp.)	24h, static	EC <sub>50</sub> <sup>12</sup>
		134 mg/l	Algae (Chlorella vulgaris and Chlamydomonas angulosa)	3h, static	EC <sub>50</sub> <sup>12</sup>
		0,74 mg/l	Daphnia (Ceriodaphnia dubia)	7d	NOEC <sup>13</sup>
		1,39 mg/l	Fish (Oncorhynchus kisutch)	40d	NOEC <sup>13</sup>
Pentane	109-66-0	27,55 mg/l	Fish (Oncorhynchus mykiss)	96h, QSAR <sup>16</sup>	LC <sub>50</sub> <sup>10</sup>
		105,9 mg/l	Bacteria (Tetrahymena pyriformis)	48h, QSAR <sup>16</sup>	EC <sub>50</sub> <sup>12</sup>
		48,11 mg/l	Daphnia (Daphnia Magna)	48h, QSAR <sup>16</sup> , loading rate	EC <sub>50</sub> <sup>12</sup>
		20,33 mg/l	Algae (Pseudokirchnerella subcapitata)	72h, QSAR <sup>16</sup>	EC <sub>50</sub> <sup>12</sup>
		10,76 mg/l	Daphnia (Daphnia Magna)	21d, QSAR <sup>16</sup> , loading rate	NOEL <sup>17</sup>
		6,165 mg/l	Fish (Oncorhynchus mykiss)	28d, QSAR <sup>16</sup> , loading rate	NOEL <sup>17</sup>
Ethylbenzene	100-41-4	4,2 mg/l	Fish (Oncorhynchus mykiss)	96h, semi-static (OECD Guideline 203)	LC <sub>50</sub> <sup>10</sup>
		1,8-2,4 mg/l	Daphnia (Daphnia Magna)	48h, static (EPA Method F)	EC <sub>50</sub> <sup>12</sup>
		96 mg/l	Bacteria (Nitrosomonas sp.)	24h, inhibition	EC <sub>50</sub> <sup>12</sup>
		4,9 mg/l	Algae (Pseudokirchnerella subcapitata)	72h, static (US EPA 1985, measured concentration)	EC <sub>50</sub> <sup>12</sup>
		0,96 mg/l	Daphnia (Ceriodaphnia dubia)	7d, semi-static (EPA600/4-91-003)	NOEC <sup>13</sup>

## 12.2 Persistence and degradability:

No data available.

## 12.3 Bioaccumulation potential:

No data available.

## 12.4 Mobility in soil:

No data available

## 12.5 Results of PBT<sup>2</sup> and vPvB<sup>3</sup> assessment:

PBT or vPvB assessment not determined.

## 12.6 Other adverse effects:

No data available.

<sup>16</sup> QSAR = Quantitative structure activity relationship

<sup>17</sup> NOEL = No Observed Effect Level

## 13. DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods:

Must be specially treated according to local regulations.

#### 13.1.1. Information regarding the disposal of the product:

Dispose according to the relevant regulations.

Consult relevant authorities about disposal.

For this product no waste disposal key according the European Waste Catalogue (EWC) can be determined, as only the purpose of application defined by the user enables an allocation. The European waste code number has to be determined after a discussion with a specialist dealing with waste disposal.

#### 13.1.2. Information regarding the disposal of the packaging:

Dispose according to the relevant regulations.

The contaminated packaging has to be disposed in the same manner as the product.

#### 13.1.3. Physical/chemical properties that may affect waste treatment options shall be specified:

None known.

#### 13.1.4. Sewage disposal:

Must not disposed of into sewage.

#### 13.1.5. Special precautions for any recommended waste treatment:

No data available.

## 14. TRANSPORT INFORMATION

### 14.1. UN Number:

ADR, RID, AND, IMDG, IATA: UN1993

### 14.2. UN proper shipping name:

ADR, RID, AND: 1993 Flammable Liquid, N.O.S. (benzene, toluene), Environmentally Hazardous

IMDG: Flammable Liquid, N.O.S. (benzene, toluene), Marine Pollutant

IATA: Flammable Liquid, N.O.S. (benzene, toluene)

#### 14.3. Transport hazard class(es):

ADR, RID, AND, IMDG:

Class 3, Flammable Liquids

Label 3



IATA:

Class 3, Flammable Liquids

Label 3



#### 14.4. Packaging group:

ADR, RID, AND, IMDG, IATA:

II

#### 14.5. Environmental hazards:

Marine pollutant:



Special marking:



#### 14.6. Special precautions for user:

Warning:

Flammable Liquids

Danger code (Kemler):

33

EMS-Number:

F-E, S-E

Stowage Category:

A

#### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code:

Not applicable.

#### 14.8. Additional transport information:

Tunnel restriction code:

D/E

UN "Model regulation":

UN 1993 Flammable Liquid, N.O.S. (benzene, toluene), 3, II, Environmentally Hazardous



## 15. REGULATORY INFORMATION

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

Directive 2012/18/EU

#### Named dangerous substances - ANNEX I

None of the ingredients is listed.

#### Seveso category

E2 Hazardous to the Aquatic Environment

P5c Flammable Liquids

#### Qualifying quantity (tons) for the application of lower-tier requirements

200 t

#### Qualifying quantity (tons) for the application of upper-tier requirements

500 t

#### 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.

### 15.2. Chemical safety assessment:

A chemical safety assessment has not been carried out.

## 16. Disclaimer

This material data sheet was prepared for BB&G AWES Lda by [Wolfersdorff Consulting Berlin](#). The information, data and recommendations contained in this safety data sheet are provided in good faith, obtained from reliable sources and believed to be true and accurate as of the date issued; however, no representation is made as to the comprehensiveness of the information. The MSDS shall be used only as a guide for handling the product; in the course of handling and using the product other considerations may arise or be required. Users are cautioned to determine the appropriateness and applicability of the above information to their particular circumstances and purposes and assume all risk associated with the use of this product. It is the responsibility of the user to fully comply with local, national and international regulations concerning the use of this product.