MATERIAL SAFETY DATA SHEET

Date / Revised: 18/11/2019

Product Name: FireDragon Green & Clean Solid Fuel

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Name:	FireDragon Green & Clean Solid Fuel
Product No.	FD336B, CN336, CN336S, CN336PA, CN336PB, CN336MOD
Product Application	Polymerised-alcohol fuel. Intended for use as a firelighter and/or cooking fuel. May be used as a hand cleanser. Use in accordance with product instructions.
Supplier	BCB International LTD, Howell House, Lamby Industrial Park, Cardiff, CF3 2EX, United Kingdom
Emergency Telephone	+44 (0) 29 2043 3700/ +44 (0) 1554 823824 (08:00 – 17:00 Mon-Fri only)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008
One or more of the substances in this product feature the following hazards as a raw material:

Flammable solid (Category 2), H228
Eye irritant (Category 2), H319
STOT single exposure (Category 3), H336

For the full text of the H-statements mentioned in this section, see section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

Pictogram 

Signal word	Warning
Hazard statement(s)	
H228	Flammable solid.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Precautionary statement(s)

P101	If medical advice is needed, have product container or label at hand.
P103	Read label before use
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing vapours.
P271	Use only outdoors or in a well-ventilated area.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

For full list of precautionary statements, see section 16.

Supplemental hazard statements

2.3 Other hazards

This product is highly flammable. With container open, explosive vapour/air may be formed even at normal room temperatures.
During combustion/fire, the product becomes molten and exhibits flow.
In high concentrations, vapours and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	EC No.	Content (%)	Classification acc. to Regulation (EC) No 1272/2008
Ethanol, denatured	64-17-5	200-578-6	85-95	Flam. Liq. 2 (H225), Eye Irrit. 2 (H319)

Other ingredients are not deemed hazardous.
The full text for all H-statements are given in section 16.

SECTION 4: FIRST-AID MEASURES

4.1 Description of first aid measures

General Advice	Rest, warmth and fresh air. Seek medical attention if symptoms persist. Show this safety data sheet to the physician in attendance. Never give an unconscious person anything by mouth.
Inhalation	Remove to fresh air and rest. If not breathing, give artificial respiration. If symptoms persist, seek medical attention.
Ingestion	Do NOT induce vomiting. Rinse mouth immediately and give plenty of water or milk to drink. If symptoms persist, seek medical attention. Never give an unconscious person anything by mouth.
Skin contact	Remove contaminated clothing. Wash affected area with soap and water.
Eye contact	Flush with water for at least 15 minutes. Remove contact lenses if present and safe to do. Avoid washing chemical from one eye into the

other. Ensure to rinse thoroughly under the eyelid. If symptoms persist, seek medical attention.

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

Inhalation	May cause respiratory irritation. May cause drowsiness, dizziness and/or headaches.
Ingestion	Gastrointestinal symptoms; nausea, upset stomach, vomiting.
Skin contact	Repeated exposure may cause skin dryness or cracking.
Eye contact	Irritation may occur, causing redness and pain.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media	Alcohol-resistant foam, dry powder, carbon dioxide, water fog and sand.
Unsuitable extinguishing media	Do not use high-pressure water jets.
5.2 Special hazards arising from the mixture	Carbon oxides, nitrogen oxides (NO_x) and oxides of sodium may be produced during combustion. Product may produce vapour which may be invisible, heavier than air and spread along the ground. During combustion, solid fuel will become molten and exhibit flow. Vapours may form explosive mixtures with air. Flash-back possible over some distance.
5.3 Advice for firefighters	Wear self-contained breathing apparatus. Wear full-protective gear if necessary. Keep containers cool with water spray. Water run-off or discharge should not enter drains.
5.4 Further information	No information available.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures	Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.
6.2 Environmental precautions	Ensure waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container. Do not allow water run-off or discharge to enter drains or environment.

6.3	**Methods and materials for containment and cleaning up**	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see section 13). Collect waste absorbent with either an electrically protected vacuum cleaner or by wet-brushing. Wash area thoroughly with water after.
6.4	**Reference to other sections**	See section 1 for emergency contact information. See section 8 for personal protective equipment. See section 13 for waste treatment information.

SECTION 7: HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Avoid skin and eye contact. Avoid spillages. Avoid inhalation of vapour or mist. Keep away from sources of ignition. No smoking. Take measures to prevent the build-up of electrostatic charge. If left exposed, flammable and irritating vapours will be emitted. Ensure adequate ventilation. For precautions see section 2.2.
7.2	**Conditions for safe storage, including any incompatibilities**	Store in a cool, dry place. Keep container closed in a well-ventilated place. Keep away from direct sunlight and sources of heat or ignition. Do not store with oxidising agents.
7.3	**Specific end use(s)**	Apart from the uses mentioned in section 1, no other end uses are stipulated.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Components with workplace control parameters

Due to the nature of the product, workplace exposure limits are unlikely to be exceeded. The product has not been tested for workplace exposure limits when used as stipulated in section 1.

One or more component exhibits workplace exposure limits as a raw material, as below:

Ethanol	EH40 WEL, TWA – 8h	1,000ppm, 1,920mg/m^3
	ELV (IE), STEL	1,000ppm

8.2 Exposure Controls

Appropriate engineering controls	Provide adequate ventilation to ensure the defined work place exposure limits are not exceeded.

Personal protective equipment

Skin protection	Where possible, wear suitable gloves. As the product is a mixture of several substances, the durability of the glove material cannot be calculated in advance and should be tested before use. Protective gloves should be replaced is damaged or otherwise compromised through wear and tear. Protective gloves should comply with EN 374.
Eye/face protection	Contact lenses should be avoided when working with this product. Safety glasses, when worn, should comply with EN 166.
Body protection	Due to the nature/size of the product, specific clothing is not usually necessary. Impervious clothing, Flame-retardant antistatic protective clothing may be worn when handling large quantities.
Respiratory protection	Due to the nature of the product, no personal respiratory protective equipment is normally required in well ventilated areas. In case of insufficient ventilation, wear suitable respiratory aid equipment. A Type A filter is recommended and mask to EN 143
Control of environmental exposure	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Solid, colourless. Usually translucent, sometimes opaque
Odour	Alcoholic
pH	8
Melting/freezing point	60-65°C
Initial boiling point	78°C
Flash point	17°C (Cleveland open cup; BS EN ISO 2592:2001)
Upper explosion limit	19% (V)
Lower explosion limit	3.3% (V)
Vapour pressure	5.85kPa (20°C)
Flammability	No data available
Relative density	0.84g/cm^3 (20°C)
Water solubility	Partially soluble (20°C)
Auto-ignition temperature	363°C
Decomposition temperature	No data available
Viscosity	No data available
Oxidising properties	No data available
Explosive properties	Formation of explosive air/vapour mixtures is possible.
Gross calorific value	29MJ/kg (approx.)

SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable under recommended storage conditions.
10.2	**Chemical stability**	Stable under recommended storage conditions.
10.3	**Possibility of hazardous reactions**	No data available.

10.4	**Conditions to avoid**	Heat, flames, sparks, extremes of temperature and direct sunlight.
10.5	**Incompatible materials**	Alkali metals, ammonia, oxidising reagents, peroxides.
10.6	**Hazardous decomposition products**	Other decomposition products – no data available. In the event of fire, see section 5.

SECTION 11: TOXILOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	Toxic Dose – LD_{50} >2000 mg/kg (oral rat) Toxic Concentration – LC_{50} >20 mg/l (4hr mouse)
Skin corrosion/irritation	Repeated exposure may cause skin dryness or cracking.
Serious eye damage/irritation	Causes serious eye irritation. May cause redness and pain.
Respiratory damage/irritation	May cause mechanical respiratory irritation. May cause drowsiness, dizziness and/or headaches.
Ingestion	Gastrointestinal symptoms; nausea, upset stomach and/or vomiting.
Respiratory or skin sensitisation	No data available.
Germ cell mutagenicity	No data available.
Carcinogenicity	No data available.
IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probably, possible or confirmed human carcinogen by IARC.
Reproductive toxicity	No data available.
Specific target organ toxicity – single exposure	Ethanol is a CNS depressant. Exposure to vapours may cause dizziness, drowsiness and/or headaches.
Specific target organ toxicity – repeated exposure	No data available. Similar symptoms to STOT – single exposure may occur.
Aspiration hazard	No data available.

The chemical, physical and toxicological properties have not been thoroughly investigated for this product.

Values presented are based on available literature. No testing was carried out for this product.

SECTION 12: ECOLOGICAL INFORMATION

12.1	**Toxicity**	LC_{50}: > 100 mg/l (96 hrs, Fish) EC_{50}: > 100 mg/l (48 hrs, Daphnia) IC_{50}: > 100 mg/l (72 hrs, Algae)
12.2	**Persistence and degradability**	No data available.
12.3	**Bioaccumulative potential**	No data available.
12.4	**Mobility in soil**	No data available.
12.5	**Results of PBT and vPvB assessment**	PBT and vPvB assessment not available as chemical safety assessment not required, not conducted. No component of this product is deemed PBT or vPvB
12.6	**Other adverse effects**	Will dissolve and disperse in an aqueous environment. Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

Values presented are based on available literature.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product	Burn in a chemical incinerator equipped with an afterburner and scrubber, but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable product to a licensed hazardous waste disposal company. Any material used to control spillage must be disposed of in the same way. Dispose of in accordance to local and national regulations.
Contaminated packaging	Empty contaminated packaging thoroughly. This can be recycled after thorough and proper cleaning. Packaging that cannot be cleaned is to be disposed of in the same manner as the product.

SECTION 14: TRANSPORT INFORMATION

One or more of this product's components are classified as dangerous good for transportation by ADR/RID, IMDG or IATA. Available information and product testing allows determination of dangerous goods transport class for this product.

14.1 UN number

ADR/RID	1325
IMDG	1325

	IATA	1325

14.2 UN proper shipping name

ADR/RID	Flammable solid, organic, N.O.S, (ethanol mixture)
IMDG	Flammable solid, organic, N.O.S, (ethanol mixture)
IATA	Flammable solid, organic, N.O.S, (ethanol mixture)

14.3 Transport hazard class(es)

ADR/RID	Class 4.1: Flammable solid
IMDG	Class 4.1: Flammable solid
IATA	Class 4.1: Flammable solid
Packing label	

14.4 Packing group

ADR/RID	III
IMDG	III
IATA	III

14.5 Environmental hazard

ADR/RID	No
IMDG	No
IATA	No

14.6 Special precautions for user — No data available.

SECTION 15: REGULATORY INFORMATION

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

Take note of regulation (EC) 1272/2008 on the classification, labelling and packaging of substances and mixtures.
Take note of the control of substances hazardous to health (COSHH) regulations, 2002.
Take note of directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.
Take note of directive 92/85/EEC on the protection of the health and safety of pregnant workers.
Take note of directive 94/33/EC on the protection of young people at work
Take note of workplace exposure limits, 2005 (EH40)

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: OTHER INFORMATION

Full text of H-statements referred to under sections 2 and 3.

H228	Flammable solid
H319	Causes serious eye irritation

H336	May cause drowsiness or dizziness

Full text of P-statements referred to under section 2.

P101	If medical advice is needed, have product container, or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/light/equipment.
P261	Avoid breathing vapours.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P304 + P340 + P312	IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTRE or doctor/physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists get medical advice/attention.
P370 + P378	In case of fire: Alcohol resistant foam, Dry Powder, Carbon Dioxide, Water Fog, Sand.
P501	Dispose of container/packaging in accordance with local regulations on waste disposal.
EUH066	Repeated exposure may cause skin dryness or cracking.

Acronyms

STOT	Specific-target organ toxicity.
STEL	Short-term exposure limit.
TWA	Time-weighted average.
LC_{50}	Lethal concentration - concentration at which 50% of the population is killed.
LD_{50}	Lethal dose – dose at which 50% of the population is killed in a given period of time.
IC_{50}	Inhibitor concentration – concentration of an inhibitor where the response/binding is reduced by half.
IARC	International agency for research on cancer.
ADR/RID	European agreement concerning the international carriage of dangerous goods by road and railway.
IMDG	International maritime dangerous goods code.
IATA	International air transport association.
PBT	Persistent, bioaccumulative and toxic.
vPvB	Very persistent, very bioaccumulative.

Further information

The information in this Safety Data Sheet should be provided to all who will use, handle, store, transport or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations, management and for people working with or handling this product. This information is believed to be reliable and

correct at the Revision Date, and represents the best information currently available and known by BCB International Ltd. However, BCB International Ltd makes no guarantee or warranty, express or implied, with respect to such information and we assume no liability and anticipated used and is for the material without chemical additions or alterations. Users should make their own investigations to determine the suitability of the information for their particular purposes. It is the responsibility of the user to undertake a suitable risk assessment/COSHH assessment prior to using the material.

Reason for update: Incorrect reference to section 1.2.