

SAFETY DATA SHEET

QUANTUM DOT 4 ESP BRAKE AND CLUTCH FLUID

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

1.1. Product identifier

Product name	QUANTUM DOT 4 ESP BRAKE AND CLUTCH FLUID
Product number	ZGBQBFESP01L, ZGBQBFESP05L, ZGBQBFESP20L
Internal identification	B307, 10440, 10441, 10442
Container size	1 Litre, 5 Litre bottles, 20 Litre Bag-in-Box

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

Identified uses	Brake fluid.
Uses advised against	This product is not recommended for any industrial, professional or consumer use other than the identified uses stated above.

1.3. Details of the supplier of the safety data sheet

Supplier	Volkswagen Group United Kingdom Ltd Yeomans Drive Blakelands Milton Keynes MK14 5AN 01908 601601
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1.4. Emergency telephone number

Emergency telephone	Tel: +44 1604 701111 (Office Hours Monday - Friday (0900 Hrs - 1700 Hrs))
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Not Classified
Health hazards	Eye Irrit. 2 - H319
Environmental hazards	Not Classified

Human health	The liquid is irritating to eyes and skin.
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2.2. Label elements

Pictogram



Signal word	Warning
Hazard statements	H319 Causes serious eye irritation.

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Precautionary statements	P264 Wash contaminated skin thoroughly after handling.
	P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
	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.
	P102 Keep out of reach of children.

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

2-(2-(2-METHOXYETHOXY)ETHOXY)ETHANOL 10-30% CAS number: 112-35-6 EC number: 203-962-1 REACH registration number: 01-2119475101-50-XXXX
Classification Not Classified
2-[2-(2-BUTOXYETHOXY)ETHOXY]ETHANOL 10-30% CAS number: 143-22-6 EC number: 205-592-6 REACH registration number: 01-2119475107-38-XXXX
Classification Eye Dam. 1 - H318
2-(2-METHOXYETHOXY)ETHANOL 1-5% CAS number: 111-77-3 EC number: 203-906-6 REACH registration number: 01-2119475100-52-XXXX
Classification Repr. 2 - H361
3,6,9,12-TETRAOXAHEXADECAN-1-OL 1-5% CAS number: 1559-34-8 EC number: 216-322-1
Classification Eye Irrit. 2 - H319
2-(2-BUTOXYETHOXY)ETHANOL 1-5% CAS number: 112-34-5 EC number: 203-961-6 REACH registration number: 01-2119475104-44-XXXX
Classification Eye Irrit. 2 - H319

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1,1'-IMINODIPROPAN -2-OL		1-5%
CAS number: 110-97-4	EC number: 203-820-9	REACH registration number: 01-2119475444-34-XXXX
Classification		
Eye Irrit. 2 - H319		

The full text for all hazard statements is displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention if any discomfort continues.
Inhalation	Move affected person to fresh air at once. Get medical attention if any discomfort continues.
Ingestion	Never give anything by mouth to an unconscious person. Do not induce vomiting. Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention immediately.
Skin contact	Remove affected person from source of contamination. Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if any discomfort continues.
Eye contact	Remove affected person from source of contamination. Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

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

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	No specific symptoms known.
Ingestion	No specific symptoms known.
Skin contact	Prolonged skin contact may cause redness and irritation.
Eye contact	Irritation and redness, followed by blurred vision. May cause severe eye irritation.

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

Notes for the doctor	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards	Toxic gases or vapours.
Hazardous combustion products	Oxides of carbon. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

5.3. Advice for firefighters

Protective actions during firefighting	Avoid breathing fire gases or vapours. Control run-off water by containing and keeping it out of sewers and watercourses. Containers close to fire should be removed or cooled with water.
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Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions

Environmental precautions Collect and place in suitable waste disposal containers and seal securely. Label the containers containing waste and contaminated materials and remove from the area as soon as possible. Avoid discharge into drains or watercourses or onto the ground. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Stop leak if possible without risk. Absorb in vermiculite, dry sand or earth and place into containers. Flush contaminated area with plenty of water. Avoid the spillage or runoff entering drains, sewers or watercourses.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid spilling. Eye wash facilities and emergency shower must be available when handling this product. Good personal hygiene procedures should be implemented. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Keep only in the original container.

Storage class Chemical storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

2-[2-(2-BUTOXYETHOXY)ETHOXY]ETHANOL

No exposure limit value known.

2-(2-METHOXYETHOXY)ETHANOL

Long-term exposure limit (8-hour TWA): WEL 10 ppm 50.1 mg/m³
Sk

2-(2-BUTOXYETHOXY)ETHANOL

Long-term exposure limit (8-hour TWA): WEL 10 ppm 67.5 mg/m³
Short-term exposure limit (15-minute): WEL 15 ppm 101.2 mg/m³

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WEL = Workplace Exposure Limit
Sk = Can be absorbed through the skin.

Ingredient comments

WEL = Workplace Exposure Limits

2-(2-(2-METHYOXYETHOXY)ETHOXY)ETHANOL (CAS: 112-35-6)

DNEL	<p>Workers - Inhalation; Long term systemic effects: 154 mg/m³ Workers - Dermal; Long term systemic effects: 167 mg/kg bw/day General population - Inhalation; Long term systemic effects: 93 mg/m³ General population - Dermal; Long term systemic effects: 100 mg/kg bw/day General population - Oral; Long term systemic effects: 10 mg/kg bw/day</p>
PNEC	<p>- Fresh water; 10 mg/l - Marine water; 1 mg/l - Intermittent release; 50 mg/l - STP; 200 mg/l - Sediment (Freshwater); 36.6 mg/kg sediment dw - Sediment (Marinewater); 3.66 mg/kg sediment dw - Soil; 1.56 mg/kg soil dw</p>

2-[2-(2-BUTOXYETHOXY)ETHOXY]ETHANOL (CAS: 143-22-6)

DNEL	<p>Workers - Inhalation; Long term systemic effects: 195 mg/m³ Workers - Dermal; Long term systemic effects: 50 mg/kg bw/day General population - Inhalation; Long term systemic effects: 117 mg/m³ General population - Dermal; Long term systemic effects: 25 mg/kg bw/day General population - Oral; Long term systemic effects: 2.5 mg/kg bw/day</p>
PNEC	<p>- Fresh water; 1.5 mg/l - Marine water; 0.15 mg/l - Intermittent release; 5 mg/l - STP; 200 mg/l - Sediment (Freshwater); 5.77 mg/kg sediment dw - Sediment (Marinewater); 0.13 mg/kg sediment dw - Soil; 0.45 mg/kg soil dw</p>

2-(2-METHOXYETHOXY)ETHANOL (CAS: 111-77-3)

DNEL	<p>Workers - Inhalation; Long term systemic effects: 50.1 mg/m³ Workers - Dermal; Long term systemic effects: 2.22 mg/kg bw/day General population - Inhalation; Long term systemic effects: 30.1 mg/m³ General population - Dermal; Long term systemic effects: 1.33 mg/kg bw/day General population - Oral; Long term systemic effects: 7.5 mg/kg bw/day</p>
PNEC	<p>- Fresh water; 12 mg/l - Marine water; 1.2 mg/l - Intermittent release; 12 mg/l - STP; 10000 mg/l - Sediment (Freshwater); 44.4 mg/kg sediment dw - Sediment (Marinewater); 0.44 mg/kg sediment dw - Soil; 2.1 mg/kg soil dw</p>

2-(2-BUTOXYETHOXY)ETHANOL (CAS: 112-34-5)

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DNEL	<p>Workers - Inhalation; Long term systemic effects, local effects: 67.5 mg/m³</p> <p>Workers - Inhalation; Short term local effects, Acute: 101.2 mg/m³</p> <p>Workers - Dermal; Long term systemic effects: 83 mg/kg bw/day</p> <p>General population - Inhalation; Long term systemic effects, local effects: 40.5 mg/m³</p> <p>General population - Inhalation; Short term Acute, local effects: 60.7 mg/m³</p> <p>General population - Dermal; Long term systemic effects: 50 mg/kg bw/day</p> <p>General population - Oral; Long term systemic effects: 5 mg/kg bw/day</p>
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PNEC	<ul style="list-style-type: none"> - Fresh water; 1.1 mg/l - Intermittent release; 11 mg/l - Marine water; 0.11 mg/l - STP; 200 mg/l - Sediment (Freshwater); 4.4 mg/kg sediment dw - Sediment (Marinewater); 0.44 mg/kg sediment dw - Soil; 0.32 mg/kg soil dw
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1,1'-IMINODIPROPAN -2-OL (CAS: 110-97-4)

DNEL	<p>Workers - Inhalation; Long term systemic effects: 16 mg/m³</p> <p>Workers - Dermal; Long term systemic effects: 12.5 mg/kg bw/day</p> <p>General population - Inhalation; Long term systemic effects: 3.9 mg/m³</p> <p>General population - Dermal; Long term systemic effects: 6.3 mg/kg bw/day</p> <p>General population - Oral; Long term systemic effects: 1.3 mg/kg bw/day</p>
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PNEC	<ul style="list-style-type: none"> - Fresh water; 0.278 mg/l - Marine water; 0.028 mg/l - Intermittent release; 2.777 mg/l - STP; 15000 mg/l - Sediment (Freshwater); 2.33 mg/kg sediment dw - Sediment (Marinewater); 0.233 mg/kg sediment dw - Soil; 0.303 mg/kg soil dw
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8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Avoid inhalation of vapours. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection

Contact lenses should not be worn when working with this chemical. Use safety glasses (with side shields), consistent with EN 166 or equivalent.

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Hand protection	Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Use gloves with insulation for thermal protection (EN 407), when needed. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.
Other skin and body protection	Wear appropriate clothing to prevent any possibility of skin contact. Provide eyewash station and safety shower. Barrier cream applied before work may make it easier to clean the skin after exposure, but does not prevent absorption through the skin.
Hygiene measures	Do not smoke in work area. Wash at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes contaminated. Promptly remove any clothing that becomes contaminated. Do not eat, drink or smoke when using this product.
Respiratory protection	No specific recommendations. Respiratory protection may be required if excessive airborne contamination occurs.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Clear liquid.
Colour	Amber.
Odour	No characteristic odour.
pH	pH (concentrated solution): 7.0-10.5
Melting point	< -50°C
Initial boiling point and range	260-300°C @ 760 mm Hg
Flash point	> 200°C Closed cup.
Relative density	~ 1.035 @ 15°C
Solubility(ies)	Miscible with water. Miscible with the following materials: Ethanol.
Auto-ignition temperature	>300°C

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity There are no known reactivity hazards associated with this product.

10.2. Chemical stability

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Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.

10.4. Conditions to avoid

Conditions to avoid Avoid the formation of mists.

10.5. Incompatible materials

Materials to avoid Strong alkalis. Strong acids.

10.6. Hazardous decomposition products

Hazardous decomposition products Does not decompose when used and stored as recommended.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

General information To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated.

Skin contact May cause skin irritation.

Eye contact May cause severe eye irritation.

Acute and chronic health hazards Not expected to be a health hazard when used under normal conditions.

Route of exposure Skin and/or eye contact

Medical symptoms Irritation of eyes and mucous membranes.

Toxicological information on ingredients.

2-[2-(2-BUTOXYETHOXY)ETHOXY]ETHANOL

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 5,170.0

Species Rat

ATE oral (mg/kg) 5,170.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 3,540.0

Species Rabbit

ATE dermal (mg/kg) 3,540.0

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Data lacking.

Skin corrosion/irritation

Animal data Conclusive data but not sufficient for classification.

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Serious eye damage/irritation

Serious eye damage/irritation Risk of serious damage to eyes.

Respiratory sensitisation

Respiratory sensitisation Data lacking.

Skin sensitisation

Skin sensitisation Conclusive data but not sufficient for classification.

Germ cell mutagenicity

Genotoxicity - in vitro Negative.

Genotoxicity - in vivo Conclusive data but not sufficient for classification.

Carcinogenicity

Carcinogenicity Data lacking.

Reproductive toxicity

Reproductive toxicity - fertility Conclusive data but not sufficient for classification.

Specific target organ toxicity - single exposure

STOT - single exposure Conclusive data but not sufficient for classification.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Conclusive data but not sufficient for classification.

Aspiration hazard

Aspiration hazard No data available.

Eye contact May cause chemical eye burns.

SECTION 12: Ecological Information

Ecotoxicity Not regarded as dangerous for the environment. The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.

12.1. Toxicity

Ecological information on ingredients.

2-[2-(2-BUTOXYETHOXY)ETHOXY]ETHANOL

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 2400 mg/l, Pimephales promelas (Fat-head Minnow)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 2210 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: > 612.6 mg/l, Scenedesmus subspicatus
NOEC, 72 hours: 62.5 mg/l, Scenedesmus subspicatus

Acute toxicity - microorganisms IC₅₀, 16 hours: >5000 mg/l, Activated sludge

12.2. Persistence and degradability

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Ecological information on ingredients.

2-[2-(2-BUTOXYETHOXY)ETHOXY]ETHANOL

Persistence and degradability	The product is readily biodegradable.
Biodegradation	Water - Degradation (%) 85: 28 days The substance is readily biodegradable.

12.3. Bioaccumulative potential

Ecological information on ingredients.

2-[2-(2-BUTOXYETHOXY)ETHOXY]ETHANOL

Bioaccumulative potential	Not potentially bioaccumulative
Partition coefficient	log Pow: -0.49 log Kow: ≤ 4.5

12.4. Mobility in soil

Mobility	The product is soluble in water.
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Ecological information on ingredients.

2-[2-(2-BUTOXYETHOXY)ETHOXY]ETHANOL

Mobility	Potential for mobility in soil is very high.
Adsorption/desorption coefficient	Water - Koc: 0 - 50 @ °C
Henry's law constant	~ 1.40E-06 atm m ³ /mol @ °C

12.5. Results of PBT and vPvB assessment

Ecological information on ingredients.

2-[2-(2-BUTOXYETHOXY)ETHOXY]ETHANOL

Results of PBT and vPvB assessment	This product does not contain any substances classified as PBT or vPvB.
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12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	The packaging must be empty (drop-free when inverted). Waste should be treated as controlled waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.
Disposal methods	Waste material and any included combustible absorbent and containers should be suitable for incineration at an approved facility.

SECTION 14: Transport information

General	The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).
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14.1. UN number

Not applicable.

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14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

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

Transport in bulk according to Not applicable.

**Annex II of MARPOL 73/78
and the IBC Code**

SECTION 15: Regulatory information

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

National regulations	The Control of Substances Hazardous to Health Regulations 2002 (SI 2002 No. 2677) (as amended).
EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).
Guidance	Workplace Exposure Limits EH40.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Issued by	HS&E Manager.
Revision date	29/06/2018
Revision	2
Supersedes date	05/05/2017
SDS number	20655
SDS status	Approved.
Hazard statements in full	H318 Causes serious eye damage. H319 Causes serious eye irritation. H361 Suspected of damaging fertility or the unborn child.

QUANTUM DOT 4 ESP BRAKE AND CLUTCH FLUID

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.