



Printing date: 18.03.2015

## Safety data sheet according to 1907/2006/EC, Article 31

Version: 2. 0

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

#### 1.1 Product identifier

Trade name: DAB FLOW - QK

1.2 Relevant identified uses of the substance or mixture and uses advised against: No further relevant information available.

Application of the substance / the preparation: Coatings

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

##### Supplier/Manufacturer:

DAB FLOW, Nanotechnology- FZC  
Office #921, Iris Bay Tower, Business Bay  
P.O Box: 0232473, Dubai - UAE  
Tel.: (+971)42475921  
info@dabflow.co

Information department: See supplier/manufacturer

#### 1.4 Emergency telephone number:

Giftnotruf Berlin: Tel.: +49 (0)30/19240

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC



F+; Highly flammable

R11: Highly flammable.

#### Information concerning particular hazards for human and environment:

Based on the classification criteria for mixtures according to Regulation (EC) No. 1272/2008, the mixture is subject to labelling.  
Vapours may form explosive mixtures with air.

#### Classification system:

The classification complies with current legislation, but is supplemented with information from technical literature and company information.

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- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS02 GHS07

- **Signal word** Danger
- **Hazard-determining components of labelling:**  
ethanol
- **Hazard statements**  
H225 Highly flammable liquid and vapour.  
H319 Causes serious eye irritation.
- **Precautionary statements**  
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P280 Wear protective clothing.  
P233 Keep container tightly closed.  
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.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable
- **vPvB:** Not applicable

### SECTION 3: Composition/information on ingredients

- **3.2 Chemical characterisation: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 64-17-5	ethanol	90-100%
EINECS: 200-578-6	F R11	
Index number: 603-002-00-5	Flam. Liq. 2, H225; Eye Irrit. 2, H319	
Reg.nr.: 01-2119457610-43-xxxx		

CAS: 78-93-3	butanone	< 2.5%
EINECS: 201-159-0	Xi R36; F R11 R66-	
Index number: 606-002-00-3	67	
Reg.nr.: 01-2119457290-43-xxxx	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336	

- **Additional information:** For the wording of the listed risk phrases refer to section 16.

### SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:**  
Remove affected persons from danger area and lay them down.  
If symptoms persist or in case of doubt, seek medical advice.
- **After inhalation:** Supply fresh air; consult a doctor in case of pain.
- **After skin contact:** Generally the product does not irritate the skin.

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- **After eye contact:** Rinse the eyes with open eyelids for 10 - 15 minutes with water. Then consult a doctor (eye specialist).
- **After swallowing:**  
Rinse out mouth and then drink plenty of water.  
Spit liquid out again.  
If vomiting occurs spontaneously:  
Hold the head of the vomiting person low with the body in a prone position in order to avoid aspiration.
- **4.2 Most important symptoms and effects, both acute and delayed**  
Respiratory irritation (by prolonged inhalation narcotic effect possible)  
Irritation of eyes and mucous membrane  
After inhalation of high concentrations:  
Difficulties in breathing  
Cough  
Watering eyes
- **4.3 Indication of any immediate medical attention and special treatment needed** Symptomatic treatment

### SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.  
Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents:** High volume water jet
- **5.2 Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Can form explosive gas-air mixtures.  
Vapours are heavier than air.  
Vapours spread on the ground to a distant ignition source and flash back.  
Carbon monoxide and carbon dioxide
- **5.3 Advice for firefighters**
- **Protective equipment:**  
Do not inhale explosion gases or combustion gases.  
Wear self-contained respiratory protective device.  
Wear a fully protective suit.
- **Additional information:**  
Cool endangered receptacles with water spray.  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.  
Collect contaminated fire fighting water separately. It must not enter the sewage system.

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Ensure adequate ventilation.



Wear protective equipment. Keep unprotected persons away.

- Avoid contact with eyes and skin.
- Do not smoke - keep ignition sources away
- Use respiratory protective device against the effects of fumes/dust/aerosol.

- **6.2 Environmental precautions:**  
Do not allow product to reach sewage system or any water course.  
Do not allow to penetrate the ground/soil.  
Prevent seepage into sewage system, workpits and cellars.

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- **6.3 Methods and material for containment and cleaning up:**  
Absorb with non-combustible material like sand, soil or diatomite.  
Make sure to recycle or dispose of in suitable receptacles.  
Ensure adequate ventilation.
- **6.4 Reference to other sections**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**  
Keep receptacles tightly sealed.  
Prevent formation of aerosols.  
Do not breathe aerosol or vapors.  
Ensure good interior ventilation, especially at floor level (Fumes are heavier than air.).  
Avoid contact with eyes and skin.
- **Information about protection against explosions and fires:**  
Vapours may form explosive mixtures with air.  
Use only in explosion protected area.  
Use explosion-proof apparatus / fittings and spark-proof tools.  
Flammable gas-air mixtures may be formed in empty receptacles.



Keep ignition sources away - Do not smoke.

- Protect against electrostatic charges.
- Observe the national regulations for storage of flammable liquids.
- Observe the general rules of industrial fire protection.

- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Store cool and dry in a well ventilated area.  
Store in a cool location.
- **Information about storage in one common storage facility:**  
Store away from oxidising agents.  
Store away from foodstuffs.  
Store away from feed.  
Refer to national regulations for storing hazardous chemicals.
- **Further information about storage conditions:**  
Protect from heat and direct sunlight.  
Store in a cool place. Heat will increase pressure and may lead to the receptacle bursting.  
Keep receptacle tightly sealed.  
Store under cool, dry conditions in well sealed receptacles.
- **Storage class:** 3: Flammable liquids
- **7.3 Specific end use(s)** Do not use as aerosol.

### SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.

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#### · 8.1 Control parameters

#### · **Components with limit values that require monitoring at the workplace:**

##### **64-17-5 ethanol**

WEL (Great Britain) Long-term value: 1920 mg/m<sup>3</sup>, 1000 ppm

##### **78-93-3 butanone**

WEL (Great Britain) Short-term value: 899 mg/m<sup>3</sup>, 300 ppm  
Long-term value: 600 mg/m<sup>3</sup>, 200 ppm  
Sk, BMGV

IOELV (European Union) Short-term value: 900 mg/m<sup>3</sup>, 300 ppm  
Long-term value: 600 mg/m<sup>3</sup>, 200 ppm

#### · **Ingredients with biological limit values:**

##### **78-93-3 butanone**

BMGV (Great Britain) 70 µmol/L  
Medium: urine  
Sampling time: post shift  
Parameter: butan-2-one

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

#### · 8.2 Exposure controls

#### · **Personal protective equipment:**

#### · **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.  
Do not eat, drink, smoke or sniff while working.  
Remove all soiled and contaminated clothing immediately.  
Wash hands before breaks and at the end of work.  
Do not inhale gases/fumes/aerosols.  
Avoid contact with eyes and skin.

#### · **Breathing equipment:**

In case of unintentional release of substance, exceeding the occupational exposure limit value:  
Short term filter device:  
Filter A (colour code: brown)

#### · **Protection of hands:**

Chemical resistant gloves (EN 374)  
The glove material has to be impermeable and resistant to the product/substance/preparation.  
Due to missing tests no recommendation to the glove material can be given for the product / preparation / chemical mixture.  
Selection of the glove material in consideration of the penetration times, rates of diffusion and the degradation

#### · **Material of gloves:**

Butyl rubber, BR  
Nitrile rubber, NBR  
Plastic gloves

The selection of suitable gloves depends upon the material, and also upon the quality of the gloves. The degree of protection will vary 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.

#### · **Penetration time of glove material:**

For the mixture of chemicals mentioned below the penetration time has to be at least >480 minutes (Permeation according to EN 374 Part 3: Level 8h).  
The above-mentioned times are based on reference values as per EN 374. Under practical conditions (33 °C – taking into account the body temperature), the maximum wearing time is to be limited to one-third.  
The determined penetration times according to EN 374 part III are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.  
The exact penetration time has to be found out by the manufacturer of the protective gloves and has to be observed.

#### · **Not suitable are gloves made of the following materials:**

Leather gloves  
Strong gloves

#### · **Eye protection:** Tightly sealed goggles

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### · Body protection:

Solvent resistant protective clothing

Selection of protective clothing is subject to the specific kind of work and the corresponding risk potential.

## SECTION 9: Physical and chemical properties

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

#### · General Information:

#### · Appearance:

Form:	Liquid
Colour:	Colourless
Odour:	Alcohol-like
Odour threshold:	80 ppm

· pH-value (500 g/l) at 20 °C: 1.0-3.0

#### · Change in condition:

Melting point/Melting range:	< -20 °C
Boiling point/Boiling range:	78 °C

· Flash point: &lt; 21 °C

· Flammability (solid, gaseous): Not applicable

· Ignition temperature: &gt;425 °C

· Decomposition temperature: Not determined

· Self ignition temperature: Product is not self-igniting.

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

#### · Explosion limits:

Lower:	3.5 Vol %
Upper:	15 Vol %

· Vapour pressure at 20 °C: 57 hPa (Ethanol)

· Density at 20 °C: 0.8±0.03 g/cm³

· Relative density: Not determined

· Vapour density: Not determined

· Evaporation rate: Not determined

#### · Solubility in / Miscibility with

Water:	Not miscible or difficult to mix Product precipitates.
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· Partition coefficient (n-octanol/water): Not determined

#### · Viscosity:

dynamic at 20 °C:	1-10 mPas
kinematic:	Not determined

· 9.2 Other information No further relevant information available

## SECTION 10: Stability and reactivity

· 10.1 Reactivity No further relevant information available

### · 10.2 Chemical stability

· Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications

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#### · 10.3 Possibility of hazardous reactions

Steam/air mixtures are explosive when heated intensively.  
Forms flammable gases/fumes.

#### · 10.4 Conditions to avoid

No further relevant information available

#### · 10.5 Incompatible materials:

Strong oxidants

#### · 10.6 Hazardous decomposition products:

No hazardous decomposition products if instructions for storage and handling are followed

## SECTION 11: Toxicological information

#### · 11.1 Information on toxicological effects

##### · Acute toxicity:

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

There are no quantitative data available for the product itself.

##### 64-17-5 ethanol

Oral LD<sub>50</sub> 7060 mg/kg (rat)

Dermal LD<sub>50</sub> 20000 mg/kg (rabbit)

##### 78-93-3 butanone

Oral LD<sub>50</sub> 2193 mg/kg (rat) (similar to OECD Guideline 423)

READ ACROSS CAS 78-92-2 butan-2-ol

Dermal LD<sub>50</sub> > 10 ml/kg (rabbit) (similar to OECD Guideline 402)

##### · Primary irritant effect:

##### · on the skin:

Irritation to skin and mucous membrane possible  
Continuing or repeated contact with the skin may cause dermatitis.  
Defatting effect on the skin

##### · on the eye: Irritating effect

##### · On respiratory tract: No data available

##### · Sensitisation: No sensitising effects known

##### · Other information (about experimental toxicology):

##### · Carcinogenic, mutagenic effects and adverse effects on reproduction:

Presently available data show no carcinogenic, mutagenic or teratogenic effects.

##### · Subacute to chronic toxicity:

##### · STOT-single exposure

No data available

##### · STOT-repeated exposure: No data available

##### · Additional toxicological information: Inhalation of high vapour concentrations may have a narcotic effect.

## SECTION 12: Ecological information

#### · 12.1 Toxicity

##### · Aquatic toxicity:

EC<sub>01</sub> 6500 mg/l (Pseudomonas putida)

LC<sub>50</sub> 8150 mg/l (Leuciscus idus)

##### · 12.2 Persistence and degradability

Biodegradable

##### · 12.3 Bioaccumulative potential

No further relevant information available

##### · 12.4 Mobility in soil

No further relevant information available

##### · Additional ecological information:

##### · General notes:

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous to water

According to appendix 4 of VwVwS dated 27.7.2005 (German regulation)

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Danger to drinking water is possible if large quantities leak into the ground or into water course.

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- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable
- **vPvB:** Not applicable
- **12.6 Other adverse effects** No further relevant information available

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.  
Disposal according to instructions of local authorities  
Must be recycled or disposed of according to the regulations. Waste has to be classified according to the European Waste Catalogue based on the identification of the waste generating source.
- **European waste catalogue:**  
08 00 00 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS  
08 01 00 wastes from MFSU and removal of paint and varnish  
08 01 11\* waste paint and varnish containing organic solvents or other dangerous substances
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

### SECTION 14: Transport information

- |  |   |
|--|---|
| · <b>14.1 UN-Number</b>  | UN1993  |
| · <b>ADR, IMDG, IATA</b>   |   |
| · <b>14.2 UN proper shipping name</b>  | 1993 FLAMMABLE LIQUID, N.O.S. (ETHANOL (ETHYL ALCOHOL)), special provision 640D |
| · <b>ADR</b>   | FLAMMABLE LIQUID, N.O.S. (ETHANOL (ETHYL ALCOHOL))                              |
| · <b>IMDG</b>  | FLAMMABLE LIQUID, N.O.S. (ETHANOL)  |
| · <b>IATA</b>  |   |
| · <b>14.3 Transport hazard class(es)</b>   |   |
| · <b>ADR</b>   |   |
|  |   |
| · <b>Class</b>   | 3 (F1) Flammable liquids  |
| · <b>Label</b>   | 3   |
| · <b>IMDG, IATA</b>  |   |
|  |   |
| · <b>Class</b>   | 3 Flammable liquids   |
| · <b>Label</b>   | 3   |
| · <b>14.4 Packing group</b>  |   |
| · <b>ADR, IMDG, IATA</b>   | II  |

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· <b>14.5 Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>14.6 Special precautions for user</b>	Warning: Flammable liquids
· <b>Danger code (Kemler):</b>	33
· <b>EMS Number:</b>	F-E,S-E
· <b>14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Limited quantities (LQ):</b>	1L
· <b>Excepted quantities (EQ)</b>	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· <b>Transport category:</b>	2
· <b>Tunnel restriction code:</b>	D/E
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	1L
· <b>Excepted quantities (EQ)</b>	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· <b>IATA</b>	
· <b>Remarks:</b>	Packing Instructions: For Limited Quantities: Y341 (Max Net Qty/Pkg: 1 l) Passenger and Cargo Aircraft: 353 (Max Net Qty/Pkg: 5 l) Cargo Aircraft only: 364 (Max Net Qty/Pkg: 60 l)
· <b>UN "Model Regulation":</b>	UN1993, FLAMMABLE LIQUID, N.O.S. (ETHANOL (ETHYL ALCOHOL)), special provision 640D, 3, II

## SECTION 15: Regulatory information

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

#### · National regulations

#### · Class Share in %:

· NK 99.4

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water

· **Further information:** Version/s 1 is/are not available in this language.

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

## SECTION 16: Other information

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

#### · **Reasons for amendments:**

Classification

Labelling

General revision

Information on formulation

Threshold limit value (TLV)

Information on toxicity

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**Information on transport****Relevant phrases**

H225 Highly flammable liquid and vapour.

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

R11 Highly flammable.

R36 Irritating to eyes.

R66 Repeated exposure may cause skin dryness or cracking.

R67 Vapours may cause drowsiness and dizziness.

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

MAL-Code: Måleteknisk Arbejdshygienisk Luftbehov (Regulation for the labeling concerning inhalation hazards, Denmark)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Flam. Liq. 2: Flammable liquids, Hazard Category 2

Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

**Sources: MSDS of the manufacturer**