1. Product and Company Identification

Product name         ROVIMIX® Hy-D® 1.25%
Product code         50 0237 0
Company information  Enquiries: DSM Nutritional Products AG
                       Wurmisweg 576
                       CH-4303 Kaiseraugst
                       Switzerland
                       Phone    +41-62 866 23 14
                       Fax       +41-62 866 25 10

2. Composition/Information on ingredients

Characterization     mixture of approx. 1.25% 25-Hydroxyvitamin D3 with auxiliary
                      substances; for animal feed

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concentration</th>
<th>EU-Classification (pure ingredient)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-Hydroxyvitamin D3</td>
<td>~ 1.25 %</td>
<td>Xn R22, R48/22, R53 S22, S36/37, S61</td>
</tr>
<tr>
<td>CAS: 63283-36-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EINECS: 242 990 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethoxyquin [stabilizer]</td>
<td>3.75 %</td>
<td>Xn R22 S24</td>
</tr>
<tr>
<td>CAS: 91-53-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EINECS: 202 075 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silicon dioxide [SiO2]</td>
<td>~ 1 %</td>
<td></td>
</tr>
<tr>
<td>CAS: 7631-86-9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Hazards identification

Most important hazards - No particular hazards known.
### 4. First-aid measures

| Eye contact | rinse immediately with tap water for 10 minutes - open eyelids forcibly |
| Skin contact | remove immediately contaminated clothes, wash affected skin with water and soap - do not use any solvents |
| Inhalation | remove the casualty to fresh air and keep him/her calm |
| Note to physician | treat symptomatically |

### 5. Fire-fighting measures

| Suitable extinguishing media | water spray jet, dry powder, foam, carbon dioxide |
| Specific hazards | consider dust explosion hazard |
| Protection of fire-fighters | precipitate gases/vapours/mists with water spray |

### 6. Accidental release measures

| Environmental protection | avoid release to the environment |
| Methods for cleaning up | take up mechanically and dispose of |

### 7. Handling and storage

#### Handling

| Technical measures | processing in closed systems, if possible superposed by inert gas (e.g. nitrogen) |
|                    | avoid dust formation; high dust explosion hazard |
|                    | use with adequate ventilation |

#### Storage

| Storage conditions | protected from light |
|                   | dry, cool and ventilated place |
|                   | for quality reasons under inert gas (e.g. nitrogen) |

| Validity | 12 months, < 15 °C, in the unopened original container, see "best use before" date stated on the label, after opening the container, the contents should be used within a short period |
| Packaging materials | tightly closing |
8. Exposure controls/Personal protection

Engineering Measures - see 7.

Monitoring

Threshold value (D) air - MAK: 4 mg/m³ (inhalable fraction) *1
Threshold value (Roche) air - IOEL: 0.001 mg/m³ *2

Personal protective equipment

Respiratory protection - in case of open handling or accidental release: particle mask or respirator with independent air supply
Hand protection - protective gloves (neoprene, nitrile or butyl rubber)
Eye protection - safety glasses
General protective and hygiene measures - instruction of employees recommended

*1 referring to: Silicic acid [SiO2]
*2 referring to: 25-Hydroxyvitamin D3

9. Physical and chemical properties

Colour off-white to beige
Form fine powder
Sieve analysis > 90 % through USP standard sieve no. 80 (Ø 180 µm)
Solubility dispersible, water

10. Stability and reactivity

Conditions to avoid - warming
- light
- humidity
- air

Note - high combustion and ignition potential
- strongly exothermic decomposition at higher temperatures (> 150 °C)
11. Toxicological information

Acute toxicity
- LD₅₀ ≥ 800 mg/kg (oral, rat) *³
- LD₅₀ > 200 mg/kg (oral, rat)
  (OECD No. 423 (Acute Toxic Class Method)) *²

Local effects
- skin: non-irritant (rabbit; OECD No. 404)
- eye: non-irritant (temporary redness) (rabbit; OECD No. 405)

Sensitization
- sensitizing; contact dermatitis *³

Chronic toxicity
- chronic overdosage may lead to formation of renal calculi, bone
demineralisation and formation of calcination foci in lung and kidneys up to renal insufficiency *²
- NOAEL 0.012 mg/kg/d (oral, rat; 180 d) *²

Mutagenicity
- not mutagenic (various test systems) *³
- not mutagenic (Ames test) *²
- does not induce chromosomal aberrations in vitro (lymphocyte test;
  OECD No. 473 (Mammalian Cytogenic Test)) *²

Reproduction toxicity
- may lead to malformations at dose levels that cause maternal
toxicity *²

Note
- ADI (Acceptable Daily Intake): 0.06 mg/kg *³

*² referring to: 25-Hydroxyvitamin D3
*³ referring to: Ethoxyquin

12. Ecological information

Ready biodegradability
- not readily biodegradable
  22 %, 28 d
  (CO₂ Evolution Test, Modified Sturm Test, OECD No. 301B) *³
- not readily biodegradable
  ≤ 1 %, 28 d
  (Manometric Respirometry Test, OECD No. 301 F) *²

Ecotoxicity
- strongly toxic for planktonic crustaceans (Daphnia magna)
  EC₅₀ (48 h) 2.0 mg/l *³
- moderately toxic for fish (rainbow trout)
  LC₅₀ (96 h) 18 mg/l *³
- barely toxic for planktonic crustaceans (nominal concentration
  = 100 mg/l), test performed with water accommodated fractions
  (Daphnia magna)
  EC₅₀ (48 h) > 100 mg/l (nominal concentration)
  NOEC (48 h) 0.000051 mg/l (average measured concentration)
  (OECD No. 202) *²
- barely toxic for fish (nominal concentration = 100 mg/l), test
  performed with water accommodated fractions (zebrafish)
  LC₅₀ (96 h) > 100 mg/l (nominal concentration)
  NOEC (96 h) 0.0042 mg/l (average measured concentration)
  (OECD No. 203, semi-static) *²
Air pollution - observe local/national regulations

*2 referring to: 25-Hydroxyvitamin D3

*3 referring to: Ethoxyquin

13. Disposal considerations

Waste from residues - observe local/national regulations regarding waste disposal

14. Transport information

Note - not classified by transport regulations

15. Regulatory information

Note - no classification and labelling according to EU directives

Water hazard class (Germany) 1: weakly hazardous for water (according to annex 4 of directive VwVwS of 17.05.1999)

16. Other information

Use - for animal nutrition (premixes, compound feeds)

Safety-lab number - BS-7480

R phrases (chapter 2 ingredients)

R22 Harmful if swallowed.

R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.

R53 May cause long-term adverse effects in the aquatic environment.

Edition documentation - changes from previous version in sections 2, 3, 8, 9, 11, 12, 15, 16

Important Notice

DSM N.V., headquartered in Heerlen, The Netherlands, has acquired the vitamins, carotenoids, enzymes, food and feed ingredients, cosmetics ingredients and fine chemicals business (VFC Business) of the Roche group of companies, headquartered in Basel, Switzerland. Within the United States, DSM Nutritional Products, Inc. has purchased certain assets and assumed certain liabilities of the VFC Business formally conducted by Roche Vitamins Inc. Please note that corporate names, trade names, trade and service marks and domain names containing the word "Roche" and the "Roche" logo will continue to appear on our business documentation during our transition. We appreciate your understanding and cooperation as we complete our rebranding program. Should you have any questions, or if DSM can be of further assistance to you, please do not hesitate to contact your Account Manager or our Account Management Center at: +41-62 866 23 14.