

**1 Identification**

- Product identifier
- Trade name: 2-(5,6)-Dimethyl Pyrazine synthetic
- Product number: 4076
- Application of the substance / the mixture Food flavorings

· Details of the supplier of the safety data sheet

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· Manufacturer/Supplier:

Advanced Biotech  
10 Taft Road  
Totowa, NJ 07512 USA

· Information department:

Product Safety Department  
productsafety@adv-bio.com

· Emergency telephone number:

1(800)535-5053 (Info Trac)  
1(352)323-3500 (International)  
During normal business hours: 1(973)339-6242

**2 Hazard(s) identification**

· Classification of the substance or mixture



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

· Label elements Harmful in contact with skin or if inhaled.

· GHS label elements

Pictograms on label shall be in the shape of a square set at a point and shall include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible.

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



GHS02

GHS06

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**Safety Data Sheet**  
 acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

**Trade name: 2-(5,6)-Dimethyl Pyrazine synthetic**

(Continuation of page 1)

· **Signal word** Danger

· **Hazard-determining components of labeling:**

2,5-dimethylpyrazine

2,6-dimethylpyrazine

· **Hazard statements**

H226 Flammable liquid and vapor.

H301 Toxic if swallowed.

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P301+P310 If swallowed: Immediately call a poison center/doctor.

P321 Specific treatment (see on this label).

P330 Rinse mouth.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 2

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	2
FIRE	2
REACTIVITY	0

Health = 2

Fire = 2

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

**3 Composition/information on ingredients**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 123-32-0	2,5-dimethylpyrazine	⚠ Acute Tox. 4, H302; Flam. Liq. 4, H227	61.0%
CAS: 108-50-9	2,6-dimethylpyrazine	⚠ Flam. Sol. 1, H228; ⚠ Acute Tox. 3, H301	39.0%

**4 First-aid measures**

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

In case of irregular breathing or respiratory arrest provide artificial respiration.

· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

(Continued on page 3)

**Safety Data Sheet**  
 acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

**Trade name: 2-(5,6)-Dimethyl Pyrazine synthetic**

(Continuation of page 2)

- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**  
 No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
 No further relevant information available.

**5 Fire-fighting measures**

- **Extinguishing media**
- **Suitable extinguishing agents:**  
 CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.
- **Additional information**  
 Cool endangered receptacles with water spray.  
 Collect contaminated fire fighting water separately. It must not enter the sewage system.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
 Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
 Dispose contaminated material as waste according to item 13.  
 Ensure adequate ventilation.
- **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.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

None of the ingredients is listed.

· **PAC-2:**

None of the ingredients is listed.

· **PAC-3:**

None of the ingredients is listed.

**7 Handling and storage**

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:**  
 Keep ignition sources away - Do not smoke.  
 Protect against electrostatic charges.

(Continued on page 4)

**Safety Data Sheet**  
 acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

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(Continuation of page 3)

- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
 No special requirements.  
 Please refer to product specification for product storage requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
 The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as a basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
 Keep away from foodstuffs, beverages and feed.  
 Immediately remove all soiled and contaminated clothing.  
 Wash hands before breaks and at the end of work.
- **Breathing equipment:** Not required.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material should be based on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**  
 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.
- **Penetration time of glove material**  
 The exact break through time has to be determined by the manufacturer of the protective gloves and has to be observed.

(Continued on page 5)

**Safety Data Sheet**  
 acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

Trade name: 2-(5,6)-Dimethyl Pyrazine synthetic

(Continuation of page 4)

· Eye protection:



Tightly sealed goggles

**9 Physical and chemical properties**

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Color:	According to product specification
· Odor:	According to product specification
· Odor threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

· Flash point: 53 °C (127.4 °F)

· Flammability (solid, gaseous): Not applicable.

· Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

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

· Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

· Vapor pressure: Not determined.

· Density at 20 °C (68 °F): 0.995 g/cm<sup>3</sup> (8.30328 lbs/gal)

· Relative density: Not determined.

· Vapor density: Not determined.

· Evaporation rate: Not determined.

· Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic:	Not determined.
Kinematic:	Not determined.

· Solvent content:

VOC content:	0.00 %
	0.0 g/l / 0.00 lb/gal

(Continued on page 6)

**Safety Data Sheet**  
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**Trade name: 2-(5,6)-Dimethyl Pyrazine synthetic**

(Continuation of page 5)

· **Other information** No further relevant information available.

**10 Stability and reactivity**

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
 No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

**11 Toxicological information**

· **Information on toxicological effects**

· **Acute toxicity:**

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

**ATE (Acute Toxicity Estimate)**

Oral LD50 222 mg/kg

**CAS: 123-32-0 2,5-dimethylpyrazine**

Oral LD50 1,020 mg/kg (rat)

**CAS: 108-50-9 2,6-dimethylpyrazine**

Oral LD50 100 mg/kg (ATE)

· **Primary irritant effect:**

- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Toxic

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

**12 Ecological information**

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.

(Continued on page 7)

**Safety Data Sheet**  
 acc. to OSHA HCS

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Reviewed on 02/08/2019

**Trade name: 2-(5,6)-Dimethyl Pyrazine synthetic**

(Continuation of page 6)

- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
 Water hazard class 1 (Self-assessment): slightly hazardous for water  
 Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

**13 Disposal considerations**

- **Waste treatment methods**
- **Recommendation:**  
 Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

- |                                                                                                                                                             |                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>DOT</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>                                | <p>NA1993<br/>                 UN1993</p>                                                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG, IATA</b></li> </ul> | <p>COMBUSTIBLE LIQUID, N.O.S (2,6-dimethylpyrazine, 2,5-dimethylpyrazine)<br/>                 1993 FLAMMABLE LIQUID, N.O.S. (2,6-dimethylpyrazine, 2,5-dimethylpyrazine)<br/>                 FLAMMABLE LIQUID, N.O.S. (2,6-dimethylpyrazine, 2,5-dimethylpyrazine)</p> |
| <ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT, IMDG, IATA</b></li> </ul>                                     | <p>3 Combustible liquids<br/>                 3</p>                                                                                                                                                                                                                      |



- **Class**
- **Label**

(Continued on page 8)


**Safety Data Sheet**  
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Trade name: 2-(5,6)-Dimethyl Pyrazine synthetic

(Continuation of page 7)

· ADR	
	
· Class	3 (F1) Flammable liquids
· Label	3
· Packing group	
· DOT, ADR, IMDG, IATA	III
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Flammable liquids
· Danger code (Kemler):	30
· EMS Number:	F-E,S-E
· Stowage Category	A
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L
-----	
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
-----	
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 1993 FLAMMABLE LIQUID, N.O.S. (2,6-DIMETHYLPYRAZINE, 2,5-DIMETHYLPYRAZINE), 3, III

**15 Regulatory information**

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

· Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

(Continued on page 9)

**Safety Data Sheet**  
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**Trade name: 2-(5,6)-Dimethyl Pyrazine synthetic**

(Continuation of page 8)

<b>· TSCA new (21st Century Act): (Substances not listed)</b>	
CAS: 123-32-0	2,5-dimethylpyrazine
CAS: 108-50-9	2,6-dimethylpyrazine

**· Proposition 65**

<b>· Chemicals known to cause cancer:</b>
None of the ingredients is listed.

<b>· Chemicals known to cause reproductive toxicity for females:</b>
None of the ingredients is listed.

<b>· Chemicals known to cause reproductive toxicity for males:</b>
None of the ingredients is listed.

<b>· Chemicals known to cause developmental toxicity:</b>
None of the ingredients is listed.

**· Carcinogenic categories**

<b>· EPA (Environmental Protection Agency)</b>
None of the ingredients is listed.

<b>· TLV (Threshold Limit Value established by ACGIH)</b>
None of the ingredients is listed.

<b>· NIOSH-Ca (National Institute for Occupational Safety and Health)</b>
None of the ingredients is listed.

**· GHS label elements**

Pictograms on label shall be in the shape of a square set at a point and shall include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible.  
 The product is classified and labeled according to the Globally Harmonized System (GHS).

**· Hazard pictograms**



GHS02 GHS06

**· Signal word Danger**

**· Hazard-determining components of labeling:**

2,5-dimethylpyrazine  
 2,6-dimethylpyrazine

**· Hazard statements**

H226 Flammable liquid and vapor.  
 H301 Toxic if swallowed.

**· Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
 P301+P310 If swallowed: Immediately call a poison center/doctor.  
 P321 Specific treatment (see on this label).  
 P330 Rinse mouth.  
 P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 P405 Store locked up.

(Continued on page 10)

**Safety Data Sheet**  
 acc. to OSHA HCS

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**Trade name: 2-(5,6)-Dimethyl Pyrazine synthetic**

P501 Dispose of contents/container in accordance with local/regional/national/international regulations. (Continuation of page 9)  
 · **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**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.

· **Relevant phrases**

- H227 Combustible liquid.
- H228 Flammable solid.
- H301 Toxic if swallowed.
- H302 Harmful if swallowed.

· **Department issuing SDS:** Product Safety Department

· **Contact:**

Product Safety Department  
 productsafety@adv-bio.com

· **Date of preparation / last revision** 02/11/2019 / -

· **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)
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- ACGIH: American Conference of Governmental Industrial Hygienists
- 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)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- Flam. Liq. 3: Flammable liquids – Category 3
- Flam. Liq. 4: Flammable liquids – Category 4
- Flam. Sol. 1: Flammable solids – Category 1
- Acute Tox. 3: Acute toxicity – Category 3
- Acute Tox. 4: Acute toxicity – Category 4

<https://prod.adv-bio.com/SDS/4076sds.pdf>