# ANEXO A

"Ranking the Risks: The 10 PaThogen-Food" Michael B. Batz, Sandra hoffMann and J. Glenn MorriS, Jr.

Link:

https://folio.iupui.edu/bitstream/handle/10244/1022/72267report.pdf

# ANEXO B

Especificaciones SIGMA-ALDRICH 2(5H) Furanone

**SIGMA-ALDRICH** sigma-aldrich.com

## SAFETY DATA SHEET

Version 5.0 Revision Date 21.12.2010
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### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**1.1 Product identifiers**

Product name : 2(5*H*)-Furanone

Product Number : 283754
Brand : Aldrich

**1.2 Other means of identification**

no data available

**1.3 Relevant identified uses of the substance or mixture and uses advised against**

For R&D use only. Not for pharmaceutical, household or other uses.

**1.4 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Pte Ltd
1 Science Park Road
#02-14 The Capricorn
Singapore Science Park Road II
SINGAPORE 117528
SINGAPORE

Telephone : +65 6779 1200
Fax : +65 6779 1822

**1.5 Emergency telephone number**

Emergency Phone # : 1-800-262-8200

### 2. HAZARDS IDENTIFICATION

**2.1 GHS Classification**

Skin irritation (Category 2)
Eye irritation (Category 2)
Specific target organ toxicity - single exposure (Category 3)

**2.2 GHS Label elements, including precautionary statements**

Pictogram

Signal word Warning

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)

Prevention
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.

Response
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

| | |
|---|---|
| P304 + P340 | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P312 | Call a POISON CENTER or doctor/ physician if you feel unwell. |
| P321 | Specific treatment (see supplemental first aid instructions on this label). |
| P332 + P313 | If skin irritation occurs: Get medical advice/ attention. |
| P337 + P313 | If eye irritation persists: Get medical advice/ attention. |
| P362 | Take off contaminated clothing and wash before reuse. |
| Storage | |
| P403 + P233 | Store in a well-ventilated place. Keep container tightly closed. |
| P405 | Store locked up. |
| Disposal | |
| P501 | Dispose of contents/ container to an approved waste disposal plant. |

**2.3 Other hazards** - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**3.1 Substances**

Formula : C4H4O2
Molecular Weight : 84.07 g/mol

| Component | Concentration |
|---|---|
| **Furan-2(5H)-one** | |
| CAS-No. 497-23-4<br>EC-No. 207-839-3 | - |

## 4. FIRST AID MEASURES

**4.1 Description of first aid measures**

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

**4.3 Indication of immediate medical attention and special treatment needed**
no data available

## 5. FIRE-FIGHTING MEASURES

**5.1 Extinguishing media**

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**
Carbon oxides

**5.3 Precautions for fire-fighters**
Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**
no data available

## 6. ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

**6.2 Environmental precautions**
Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**
For disposal see section 13.

## 7. HANDLING AND STORAGE

**7.1 Precautions for safe handling**
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Normal measures for preventive fire protection.

**7.2 Conditions for safe storage, including any incompatibilities**
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: 2 - 8 °C

Light sensitive. Store under inert gas.

**7.3 Specific end uses**
no data available

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**8.1 Control parameters**

**Occupational Exposure Limits**
We are not aware of any national exposure limit.

**8.2 Exposure controls**

**Appropriate engineering controls**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal protective equipment**

**Eye/face protection**
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

**Body Protection**
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**10.6 Hazardous decomposition products**
Other decomposition products - no data available

## 11. TOXICOLOGICAL INFORMATION

**11.1 Information on toxicological effects**

**Acute toxicity**
no data available

**Skin corrosion/irritation**
no data available

**Serious eye damage/eye irritation**
no data available

**Respiratory or skin sensitization**
no data available

**Germ cell mutagenicity**
no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

Reproductive toxicity - rat - Intraperitoneal
Maternal Effects: Ovaries, fallopian tubes. Maternal Effects: Uterus, cervix, vagina. Maternal Effects: Menstrual cycle changes or disorders.

Reproductive toxicity - rat - Intraperitoneal
Maternal Effects: Other effects.

**Specific target organ toxicity - single exposure**
Inhalation - May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**
no data available

**Aspiration hazard**
no data available

**Potential health effects**

| | |
|---|---|
| Inhalation | May be harmful if inhaled. Causes respiratory tract irritation. |
| Ingestion | May be harmful if swallowed. |
| Skin | May be harmful if absorbed through skin. Causes skin irritation. |
| Eyes | Causes serious eye irritation. |

**Additional Information**
RTECS: LU3453000

## 12. ECOLOGICAL INFORMATION

**12.1 Toxicity**
no data available

**12.2 Persistence and degradability**
no data available

**12.3 Bioaccumulative potential**
no data available

**12.4 Mobility in soil**
no data available

# ANEXO C

Especificaciones agar plate coaunt (MERCK KGaA) Ref. 1.05463.0500

Application

## Plate Count Agar (Casein-peptone Dextrose Yeast Agar)

This medium does not contain any inhibitors or indicators; it is mainly used to determine the total microbial content in milk, dairy products, water and other materials.

### General Information

The composition of this medium complies with the Standard Methods for the Examination of Water and Wastewater (1998) and the Standard Methods for the Examination of Dairy Products (1985).

### Typical Composition (g/litre)

Peptone from casein 5.0; yeast extract 2.5; D(+)glucose 1.0; agar-agar 14.0.

### Preparation

Suspend 22.5 g/litre, autoclave (15 min at 121°C). If desired, add 1.0 g skim milk powder/litre prior to sterilization.

pH: 7.0 ± 0.2 at 25°C.

The plates are clear and yellowish.

### Experimental Procedure and Evaluation

Depend on the purpose for which the medium is used.

Incubation: 48 h at 30°C aerobically.

### Literature

American Public Health Association: Standard Methods for the Examination of Dairy Products. 15 th ed., 1985.

American Public Health Association, American Water Works Association and Water Pollution Control Federation: Standard Methods for the Examination of Water and Wastewater. 20 th ed., Washington, 1998.

MARTLEY, F.G., JAYASHANKAR, S.R., a. LAWRENCE, R.C.: An improved agar medium for the detection of proteolytic organisms in total bacterial counts. - **J. Appl. Bact.,** 33; 363-370 (1970).

### Ordering Information

| Product | Ordering No. | Pack size |
|---|---|---|
| Plate Count Agar (Casein-peptone Dextrose Yeast Agar) | 1.05463 .0500 | 500 g |
| Plate Count Agar (Casein-peptone Dextrose Yeast Agar) | 1.05463.5000 | 5 kg |
| Skim milk powder | 1.15363.0500 | 500 g |

# Application

## Quality control (spiral plating method)

| Test strains | Inoculum (cfu/ml) | Recovery rate |
|---|---|---|
| Staphylococcus aureus ATCC 6538 | $10^{3}$-$10^{5}$ | ≥ 70 % |
| Streptococcus agalactiae ATCC 13813 | $10^{3}$-$10^{5}$ | ≥ 70 % |
| Lactococcus lactis spp. lactis ATCC 19435 | $10^{3}$-$10^{5}$ | ≥ 70 % |
| Listeria monocytogenes ATCC 19118 | $10^{3}$-$10^{5}$ | ≥ 70 % |
| Lactobacillus acidophilus ATCC 4356 | $10^{3}$-$10^{5}$ | ≥ 70 % |
| Bacillus cereus ATCC 11778 | $10^{3}$-$10^{5}$ | ≥ 70 % |
| Escherichia coli ATCC 11775 | $10^{3}$-$10^{5}$ | ≥ 70 % |

Bacillus cereus ATCC 11778

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