# PRODUCT SPECIFICATION SHEET

## 9Hoyle Medium Base (DM120)

**Intended Use**
Hoyle Medium Base (DM120) is recommended for selective isolation and differentiation of *Corynebacterium diphtheriae* types.

**Product Summary and Explanation**
*Corynebacterium diphtheriae* is a pathogenic bacterium and the causative agent of the most common disease diphtheria, which is an acute communicable disease manifested by both local infection of the upper respiratory tract and the systemic effects of the toxin, which are most notable in the heart and peripheral nerves.[1] Hoyle Medium Base, formulated by Hoyle,[2] is the modification of the original formulation of Neill, for the isolation and differentiation of *C. diphtheriae*. Hoyle medium base does not exert the inhibitory effect manifested by Neill's on some mitis types, but gives very rapid growth with all types of *Corynebacterium diphtheriae*, so that diagnosis is possible after 18 hours incubation.

**Principles of the Procedure**
Hoyle Medium Base contains peptic digest of animal tissue and beef extract which supply essential growth nutrients. Potassium tellurite is a selective agent, which inhibits most of the normal flora of the upper respiratory tract except *Corynebacterium*. Sodium chloride maintains the osmotic balance of the medium.

**Formula / Liter**

| Ingredients | Gms / Liter |
|---|---|
| Peptic digest of animal tissue | 10.00 |
| Beef extract | 10.00 |
| Sodium chloride | 5.00 |
| Agar | 15.00 |
| Final pH: 7.8 ± 0.2 at 25°C | |
| Formula may be adjusted and/or supplemented as required to meet performance specifications | |

**Precautions**
1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

**Directions**
1. Suspend 40 grams of the medium in 940 ml of distilled water.
2. Heat to boiling, to dissolve the medium completely.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
4. Cool to 55°C and aseptically add 50 ml of laked blood and 10 ml of 3.5% Potassium Tellurite Supplement (MS025).
5. Mix well and pour into sterile petri plates.

**Quality Control Specifications**

| | |
|---|---|
| **Dehydrated Appearance** | Cream to yellow homogeneous free flowing powder |
| **Prepared Medium** | Basal Medium: Amber coloured, clear to slightly opalescent gel<br>After Addition of blood & Tellurite : Brownish red coloured opaque gel forms in Petri plates |
| **Reaction of 4.0% Solution** | pH : 7.8 ± 0.2 at 25°C |
| **Gel Strength** | Firm, comparable with 1.5% Agar gel. |

**Expected Cultural Response:** Cultural characteristics observed with added 50 ml of laked blood and tellurite supplement, after an incubation at 35-37°C for 18-24 hours.

| Sr. | Organisms | Results to be achieved |
|---|---|---|

| No. | | Inoculum (CFU) | Growth | Recovery | Colour of colonies |
|---|---|---|---|---|---|
| 1. | *Bacillus subtilis ATCC 6633* | >=$10^3$ | inhibited | 0% | -- |
| 2. | *C. diphtheriae type intermedius 14779* | 50-100 | good-luxuriant | >=70% | grey colonies with darker centers |
| 3. | *Corynebacterium diphtheriae type mitis* | 50-100 | good-luxuriant | >=70% | grey colonies with shining surface |
| 4. | *Escherichia coli ATCC 25922* | >=$10^3$ | inhibited | 0% | -- |
| 5. | *Enterococcus faecalis ATCC29212* | 50-100 | good-luxuriant | >=70% | black minute colonies |

The organisms listed are the minimum that should be used for quality control testing.

**Test Procedure**

1. Hoyles Medium is a highly selective medium and should be used in conjunction with a non-selective media such as Loeffler Serum Medium (DM733) and Blood Agar Base (DM040) with 10% horse blood.[3]
2. *C.diphtheriae* are usually present in small numbers permitting the formation of well isolated colonies. So, inoculation is done by directly rubbing the swab over the entire surface of the medium.
3. Usually incubation for 18 hours at 35°C is sufficient but, when a negative result is obtained, incubation for up to 72 hours may be advisable.
4. Refer to appropriate references for standard test procedures.

**Results**

1. To study the morphology, gentian violet staining is done.
2. To demonstrate the characteristic morphology and staining reactions of *C. diphtheriae* by Neissers or Albert's method, it is advisable to use colonies from Loeffler Medium.
3. The toxigenicity of *C. diphtheriae* strains can be determined by Eleks[4] method.
4. Refer appropriate references and procedures for interpretation of results.

**Storage**

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

**Expiration**

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

**Limitations of the Procedure**

1. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
2. Consult appropriate texts for detailed information and recommended procedures.

**Packaging**

**Product Name : Hoyle Medium Base**
**Product Code : DM120**
**Available Pack sizes : 100gm/ 500gm**

**References**

1. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Ed.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.
2. Hoyle I., 1941, Lancet., 1:175.

3. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
4. Elek S. D., 1948, Brit. Med. A1:493.

**Further Information**

For further information please contact your local MICROMASTER Representative.

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