

## ENDOSAFE™-PTS GRAM ID

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The Gram stain assay has been used routinely to classify bacteria in microbiology laboratories for over 160 years. Since the Gram stain is often the first test for a complete bacterial identification, the cost of erroneous Gram stain results is magnified. Charles River Laboratories now offers the Endosafe™-PTS Gram ID, a definitive point-of-use test that decreases the variability and technician time associated with the Gram stain assay. The PTS Gram ID is a revolutionary new assay that utilizes a hand-held reader and disposable cartridge pre-loaded with all of the materials needed to run a single-step Gram determination.

### Test Technology

The PTS Gram ID is a fast, simple test that measures the presence of the cell walls in a microbial isolate. The measurement is interpreted by the software to indicate whether a sample contains Gram negative or positive bacteria or yeasts/molds.

The PTS Gram ID eliminates technician variability that can occur in a Gram stain determination that uses multiple reagent steps. The PTS also reduces the chances for incorrect or Gram-variable results that occur due to physiological properties of the cell wall. The PTS makes identifications based on the composition of the cell walls only, not the presence of dyes picked up by the cell walls. Over 70 different organisms have been tested with the PTS Gram ID for accuracy and specificity (see list on other side).

### Test Procedure

To perform the test, the user simply loads a different sample into each of the four sample reservoirs of the disposable cartridge. The reader draws and mixes the sample and measures the optical density of the reaction. Within about 3 minutes, the PTS will indicate if the sample organism is Gram negative or Gram positive. The test will also identify yeast/mold in about 7 minutes. There is no subjectivity or interpretation of results. Up to 100 results can be saved in memory and can be downloaded to lab management software for documentation or printed directly from the reader.

The technician time to perform a Gram determination is greatly reduced with the PTS Gram ID and there is minimal training required. In addition, there are no stains to handle or dispose of, no slides to dry or heat fix and no microscopic assessment required. The PTS has been used effectively for testing organisms that were 72 hours, reducing the need for sub-culturing. The PTS Gram ID eliminates the need for confirmation tests such as KOH or MacConkey plates.

The PTS reader is a platform that can be used for other microbiological testing including LAL analysis and other applications currently in development.

### Advantages of Gram ID

- Determines Gram +, Gram -, and yeast/mold
- Gram+, Gram - results in about 3 minutes
- Single step, definitive test
- Simple, one button operation
- Eliminates variability among technicians
- Greatly reduces Gram variable results
- Runs 4 samples simultaneously
- Results are printable and downloadable

### Gram ID Assay Procedure

- Using a loop, place an isolated colony into 2-3 mLs of saline or LRW (concentration should be 0.5 McFarland equivalence turbidity standard units)
- Add 25  $\mu$ l each of 4 samples/organisms to 4 channels in a cartridge
- Press enter
- Pump moves samples through cartridge
- Results of Gram +, Gram -, or yeast/mold are displayed on screen



## Microorganisms Evaluated for PTS Gram Stain

<i>Acidovorax delafieldii</i>	Gram –
<i>Acinetobacter baumannii</i>	Gram –
<i>Aeromonas veronii</i>	Gram –
<i>Aspergillus niger</i>	Mold
<i>Aquaspirillum</i> sp.	Gram –
<i>Bacillus cereus</i>	Gram +
<i>Bacillus circulans</i>	Gram +
<i>Bacillus dipsosauri</i>	Gram +
<i>Bacillus licheniformis</i>	Gram +
<i>Bacillus pumilus</i>	Gram +
<i>Bacillus sphaericus</i>	Gram +
<i>Bacillus subtilis</i>	Gram +
<i>Bacillus thuringiensis</i>	Gram +
<i>Brevibacterium brevis</i>	Gram +
<i>Burkholderia cepacia</i>	Gram –
<i>Candida albicans</i>	Yeast
<i>Candida guilliermondii</i>	Yeast
<i>Candida parapsilosis</i>	Yeast
<i>Citrobacter braaki</i>	Gram –
<i>Citrobacter freundii</i>	Gram –
<i>Clostridium sporogenes</i>	Gram +
<i>Corynebacterium renale</i>	Gram +
<i>Cryptococcus humicolus</i>	Yeast
<i>Cryptococcus neoformans</i>	Yeast
<i>Chryseobacterium gleum</i>	Gram –
<i>Deinococcus radiodurans</i>	Gram +
<i>Enterobacter cloacae</i>	Gram –
<i>Enterobacter intermedius</i>	Gram –
<i>Enterococcus</i>	Gram +
<i>Escherichia coli</i>	Gram –
<i>Flavobacterium odoratum</i>	Gram –
<i>Hydrogenophaga palleronii</i>	Gram –

<i>Klebsiella oxytoca</i>	Gram –
<i>Klebsiella pneumoniae</i>	Gram –
<i>Kocuria kristinae</i>	Gram +
<i>Kocuria rhizophila</i>	Gram +
<i>Listeria monocytogenes</i>	Gram +
<i>Microbacterium saperdae</i>	Gram +
<i>Micrococcus</i> sp.	Gram +
<i>Morganella morganii</i>	Gram –
<i>Ochrobactrum anthropi</i>	Gram –
<i>Paenibacillus glucanolyticus</i>	Gram +
<i>Paenibacillus polymyxa</i>	Gram +
<i>Pantoea ananas</i>	Gram –
<i>Propionibacterium acnes</i>	Gram +
<i>Pseudomonas aeruginosa</i>	Gram –
<i>Pseudomonas fluorescens</i>	Gram –
<i>Pseudomonas putida</i>	Gram –
<i>Pseudomonas stutzeri</i>	Gram –
<i>Proteus vulgaris</i>	Gram –
<i>Providencia rettgeri</i>	Gram –
<i>Ralstonia eutropha</i>	Gram –
<i>Ralstonia picketii</i>	Gram –
<i>Rhodotorula glutinis</i>	Yeast
<i>Rhodotorula rubra</i>	Yeast
<i>Serratia liquefaciens</i>	Gram –
<i>Serratia marcescens</i>	Gram –
<i>Staphylococcus aureus</i>	Gram +
<i>Staphylococcus auricularis</i>	Gram +
<i>Staphylococcus capitis</i>	Gram +
<i>Staphylococcus epidermidis</i>	Gram +
<i>Staphylococcus warneri</i>	Gram +
<i>Stenotrophomonas maltophilia</i>	Gram –
<i>Streptococcus sanguis</i>	Gram +

For additional information on the Endosafe™-PTS Gram ID, please visit our website at [www.criver.com](http://www.criver.com) or call Technical Assistance at 1-800-762-7016.