# SULFATE-FREE ENZYMES

## AVAILABLE AS LYOPHILIZED SOLIDS

We have been working on the problems of Ammonium Sulfate interference in coupled enzyme systems and have eliminated the Sulfate from a steadily expanding list of enzyme preparations. Our Sulfate-free offerings now include the following enzymes:

*A 5761* ADENOSINE 5'-TRIPHOSPHATE SULFURYLASE
*A 7011* ALCOHOL DEHYDROGENASE
*A 6758* ALDEHYDE DEHYDROGENASE
*A 5511* ALDOLASE
*C 3755* CREATINE PHOSPHOKINASE
*G 0130* GALACTOKINASE
*G 4256* GALACTOSE-1-PHOSPHATE URIDYL TRANSFERASE
*G 6378* GLUCOSE-6-PHOSPHATE DEHYDROGENASE, BAKER'S YEAST
*G 7878* GLUCOSE-6-PHOSPHATE DEHYDROGENASE, TORULA YEAST
*G 7005* GLUTAMIC OXALACETIC TRANSAMINASE
*G 8255* GLUTAMIC-PYRUVIC TRANSAMINASE
*G 8380* GLYDERALDEHYDE-3-PHOSPHATE DEHYDROGENASE
*G 8505* GLYCERALDEHYDE-3-PHOSPHATE DEHYDROGENASE/3-PHOSPHOGLYCERIC PHOSPHOKINASE
*G 6880* α-GLYCEROPHOSPHATE DEHYDROGENASE
*G 6755* α-GLYCEROPHOSPHATE DEHYDROGENASE/TRIOSEPHOSPHATE ISOMERASE
*H 4502* HEXOKINASE
*H 8629* HEXOKINASE/GLUCOSE-6-PHOSPHATE DEHYDROGENASE
*I 4503* INORGANIC PYROPHOSPHATASE
*L 1254* LACTIC DEHYDROGENASE
*O 1126* OROTIDINE 5'-MONOPHOSPHATE DECARBOXYLASE
*O 1501* OROTIDINE 5'-MONOPHOSPHATE PYROPHOSPHORYLASE
*P 9010* PHOSPHOGLUCOSE ISOMERASE
*P 1136* 3-PHOSPHOGLYCERIC PHOSPHOKINASE
*P 3386* PHOSPHORIBOISOMERASE
*P 1261* PHOSPHORYLASE-a
*P 6635* PHOSPHORYLASE-b
*P 0886* PHOSPHORYLASE KINASE
*P 9136* PYRUVATE KINASE
*P 3759* POLYOL DEHYDROGENASE
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*U 1501* URIDINE 5'-DIPHOSPHOGLUCOSE PYROPHOSPHORYLASE

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Our "Sulfate-free" Hexokinase and Glucose-6-Phosphate Dehydrogenase products (and our "Sulfate-free" Hex-G6PD premixed blend) give sharp and rapid endpoints in Glucose and ATP determinations witn minimal amounts of enzyme in each reaction mixture. This system is still the most convenient method of measuring either Glucose or ATP!

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*Type F-300*

Crystallized and Lyophilized. Contains approximately 15% Sodium Citrate.
ACTIVITY: 200-300 units/mg. Protein (Biuret)
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12/73

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Formerly *Clinical Science*



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# May We Re-introduce a Perennial Aldrich Favorite

# N-methyl-N'-nitro-N-nitrosoguanidine (MNNG)

The very first product offered by Aldrich was *N*-methyl-*N'*-nitro-*N*-nitrosoguanidine (MNNG), sold solely as a precursor for diazomethane. Beyond a doubt, it is the most convenient precursor : stable, beautifully crystalline, generating diazomethane with **aqueous** alkali.[1] However, it has serious drawbacks. It is the most powerful mutagenic agent[2] known and some people exposed to it develop a skin sensitivity. Also, the crude MNNG as obtained from the aqueous nitrosation is pyrophoric. The recrystallized product is not, and furthermore, it is so nicely crystalline that it can be weighed easily without contact with the skin.

For larger scale production of diazomethane, our Diazald® has advantages over MNNG. It is not a skin irritant and it costs much less. However, Diazald® has two disadvantages: *(i)* a shelf-life of only one to two years, and *(ii)* the generation of diazomethane requires **alcoholic** alkali, aqueous alkali being ineffective. Thus, many scientists, particularly biochemists, who require only small quantities of diazomethane have continued to use our MNNG.

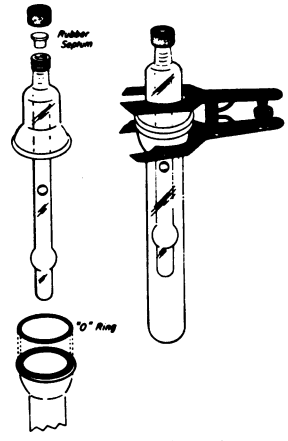


Figure 1. Apparatus for preparing diazomethane *
Z10,100-1 and Z10,102-8

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The standard preparation of diazomethane involves adding MNNG to a cold 50% aqueous potassium hydroxide solution covered with ether, and then codistilling the diazomethane with the ether. Diazomethane has been reported to be explosive, particularly on contact with ground glass joints, and so generations of chemists have watched this codistillation with trepidation. We now offer two sets of apparatus which allow safe, more convenient generation of diazomethane either with or without distillation.

The first of these enables the preparation of diazomethane from MNNG **without distillation.**[3] Thus, MNNG is placed in the inner chamber and cold ether is introduced into the outer chamber of the apparatus (fig. 1, millimole or micromole size), 5*N* sodium hydroxide is then injected through the silicon septum onto the MNNG and diazomethane collects in the ether, ready for use. Higher diazoalkanes can be prepared from our other *N*-alkyl-*N'*-nitro-*N*-nitrosoguanidines (ethyl, propyl, butyl, are available). as can their deuterated and tritiated analogs.[4,5] Our Diazald® Kit for the generation of diazomethane from Diazald® features smooth Clear-Seal® joints which avoid the hazards associated with ground glass joints. Deuterated diazomethane is easily prepared using our Deutero Diazald® Prep Set which contains instructions and chemicals necessary for generating 50 mmoles of deuterated diazomethane.

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| Z10,025-0 | Diazald® Kit $69.50 |
| 16,484-4 | Deutero Diazald® Prep Set $50.00 |

† Denotes molar unit

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