

Phase Lock Gel Datasheet

Phase Lock Gel™ (PLG) is a unique product that eliminates interphase-protein contamination during phenol extraction and ensures faster results with improved recoveries. PLG migrates to form a tight seal between the phases of an aqueous/organic extraction during centrifugation. The organic phase and the interphase materials are effectively trapped in or below the barrier, thus enabling complete and easy decanting or pipetting of the entire aqueous phase. The benefits are increased yields of up to 30%, increased protection from exposure to hazardous compounds, and no risk of interphase sample contamination. PLG can be adapted to virtually any protocol requiring extraction of an aqueous sample with phenol and/or chloroform¹. For convenience, PLG is provided predispensed into standard centrifuge tubes of various sizes.

Store at room temperature—do not freeze!



Phase Lock Gel comes predispensed in various tube sizes.

Quality Assurance

Phase Lock Gel Heavy and Light effectively seal off PCI, Cl₂, H₂O-saturated PCI, H₂O-saturated Phenol, and a variety of aqueous phases. PLG Heavy is used to extract RNA, and the quality of the extracted RNA is determined by electrophoresis on a formaldehyde gel. DNA is extracted using PLG Light as described in the protocol. The extracted DNA is non-degraded, as determined by cutting with restriction endonucleases and running on an agarose gel with ethidium bromide staining.

Enzyme Reaction and Extractions in a Single Tube

PLG is inert and stable to mild heating, and it does not interfere with any of the standard nucleic acid restriction and modification enzymes. The reactions can be carried out in the presence of PLG at the appropriate temperature and then terminated and extracted by the addition of phenol or phenol/chloroform to the reaction tube. PLG can be present during the heating stage of the deactivation of enzymes (65°C for 10 min.) prior to the organic extraction.

The following restriction and modifying enzyme reactions (20–50 µl total volume) have been performed successfully with PLG 0.5 ml tubes.

Restriction Enzymes

<i>Acc</i> I	<i>Eco</i> R V	<i>Nde</i> I	<i>Sau</i> 3A I
<i>Ase</i> I	<i>Hinc</i> II	<i>Pac</i> I	<i>Sma</i> I
<i>Bam</i> H I	<i>Hind</i> III	<i>Pme</i> I	<i>Spe</i> I
<i>Bgl</i> I	<i>Hinf</i> I	<i>Pst</i> I	<i>Sph</i> I
<i>Bgl</i> II	<i>Hpa</i> I	<i>Pvu</i> II	<i>Sst</i> I
<i>Cla</i> I	<i>Kpn</i> I	<i>Rsa</i> I	<i>Xba</i> I
<i>Eco</i> R I	<i>Nco</i> I	<i>Sal</i> I	<i>Xmn</i> I

Modifying Enzymes

Calf Intestinal Alkaline Phosphatase

T4 DNA Polymerase

E. coli DNA Polymerase

Reverse Transcriptase

T4 Polynucleotide Kinase

E. coli RNase H

Terminal Deoxynucleotidyl Transferase

T4 DNA Ligase

E. coli DNA Ligase

Quick Applications Chart

PLG Heavy

Genomic DNA from Mouse Tails

Use PLG Heavy to enhance isolation of genomic DNA from mouse tails using a standard proteinase K/SDS organic extraction protocol.

Plasmid DNA Isolation

Use PLG Heavy to enhance isolation of plasmid DNA using standard alkaline lysis/phenol extraction protocols.

Total RNA Isolation

Use PLG Heavy to enhance isolation of total RNA from cells and tissues using a modified guanidinium isothiocyanate/acid phenol method.

PLG Light

Genomic DNA Isolation

Use PLG Light to enhance isolation of genomic DNA using standard proteinase K/SDS procedures.

DNA Isolation from Agarose Gels

Use PLG Light to enhance isolation of DNA fragments from agarose gels using phenol extraction procedures.

Lamba Phage or M13 DNA Isolation

Use PLG Light to enhance isolation of bacteriophage DNA using standard purification protocols.

Phase Lock Gel Light and Heavy Applications and Compatibilities

Phase Lock Gel comes in two density formulations, Heavy (H) and Light (L), and can be adapted to virtually any protocol requiring extraction with phenol and/or chloroform by simply choosing the formulation that is compatible with the aqueous and organic phases.

Aqueous Phase	Organic Phase			
	PCI	CI	H ₂ O or Buffer Sat'd. PC	H ₂ O or Buffer Sat'd Phenol
< 0.5 M NaCl	L, H	L, H	L, H	L
< 1 mg/ml BSA	L, H	L, H	L, H	L
Bacterial Cleared Lysate,	H	H	H	X
Plasmid DNA isolation				
Tissue Homogenates,	L, H	L, H	L, H	L
Genomic DNA isolation				
RNA Isolation	H	H	H	X

PCI = 25:24:1 Phenol : Chloroform : Isoamyl Alcohol

PC = 1:1 Phenol : Chloroform

CI = 24:1 Chloroform : Isoamyl Alcohol

X = Conditions Unsuitable for Phase Lock Gels

Tube size	Sample volume
1.5 ml	100-500 μ l
2 ml	100-750 μ l
15 ml	1-6 ml
50 ml	5-20 ml

Phase Lock Gel Procedure

