



CERTIFICATE OF ANALYSIS

Version 3.7

revised on Sep 11, 2018

Enzymatic CarboRelease Kit

PRODUCT NAME: Enzymatic CarboRelease Kit
PRODUCT NUMBERS: KE-DG01

LOT NUMBER: 805.1B
EXPIRATION DATE: March 03, 2020
ASSAY DATE: April 20, 2018

STORAGE: 4°C (Do not freeze)

ENZYME: Sialidase Au
PARENT LOT NUMBER: 1012.1A
SOURCE: recombinant gene from *Arthrobacter ureafaciens* expressed in *E. Coli*
FORMULATION: 20 mM Tris-HCl, 20 mM NaCl pH 7.5, filter sterilized
ACTIVITY: Activity¹ 5 U/ml (Specification: ≥ 5 U/ml)
Specific Activity² 210 U/mg (Specification: ≥ 135 U/mg)

CONTAMINATING ACTIVITY ASSAYS:
Protease Assay³ Passed (Specification "Passed")

ENZYME: β(1-4) Galactosidase
PARENT LOT NUMBER: 505.1C
SOURCE: recombinant gene from *Streptococcus pneumoniae* expressed in *E. Coli*
FORMULATION: 20 mM Tris-HCl, 25 mM NaCl pH 7.5, filter sterilized
ACTIVITY: Activity¹ 3 U/ml (Specification: ≥ 3 U/ml)
Specific Activity² 12.4 U/mg (Specification: ≥ 6 U/mg)

CONTAMINATING ACTIVITY ASSAYS:
Protease Assay³ Passed (Specification "Passed")

ENZYME: Beta-N-acetylglucosaminidase
PARENT LOT NUMBER: 502.1A
SOURCE: recombinant gene from *Streptococcus pneumoniae* expressed in *E. Coli*
FORMULATION: 20 mM Tris-HCl pH 7.5, 25 mM NaCl filter sterilized
ACTIVITY: Activity¹ 50 U/ml (Specification: ≥ 40 U/ml)
Specific Activity² 118 U/mg (Specification: ≥ 80 U/mg)

CONTAMINATING ACTIVITY ASSAYS:
Protease Assay³ Passed (Specification "Passed")

ENZYME: O-Glycosidase
PARENT LOT NUMBER: 571.1A
FORMULATION: 50 mM sodium phosphate pH 7.5, filter sterilized.
ACTIVITY: Activity¹ 1.25 U/ml (Specification: ≥ 1.25 U/ml)
Specific Activity² 26.3 U/mg (Specification: ≥ 12 U/mg)

CONTAMINATING ACTIVITY ASSAYS:
Protease Assay³ Passed (Specification "Passed")

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Enzymatic CarboRelease Kit

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PRODUCT NAME: Enzymatic CarboRelease Kit
PRODUCT NUMBER: KE-DG01

ENZYME: PNGASE F
LOT NUMBER: 604.1B

SOURCE: *Elizabethkingia miricola*

FORMULATION: The enzyme is provided as a sterile-filtered solution in 20 mM Tris-HCl (pH 7.5)

ACTIVITY: Activity¹ 5 U/ml (Specification: \geq 5 U/ml)
Specific Activity² 25 U/mg (Specification: \geq 25 U/mg)

CONTAMINATING ACTIVITY ASSAYS:

Protease Assay ³	Passed	(Specification "Passed")
Endoglycosidase assay ⁴		Passed (Specification "Passed")
Glycosidase activity ⁵		
Beta-Galactosidase	Passed	(Specification "Passed")
N-acetylglucosaminidase	Passed	(Specification "Passed")
Alpha-Galactosidase	Passed	(Specification "Passed")

1. Defined as the amount of enzyme required to hydrolyze 1 μ mole of p-nitrophenyl-alpha-p-mannoside to p-nitrophenol in 1 minute at pH 5.0 and 37°C.
2. Protein concentration determined by Bradford method, using BSA as a standard.
3. For the protease assay, 10 μ g of denatured BSA is incubated at 37°C for 24 hr with 2 ul of enzyme. SDS-PAGE analysis of the treated BSA shows no evidence of degradation.
4. Unexpected glycosidic activity is tested by incubating the enzyme for 24 hours at 37°C with the appropriate substrates; the detection limit of this assay is 5 μ U/ml (IUB). A passing lot will have no detectable activity.

President - QA-Bio Inc
Authorized by Mike Gibson
Sep 11, 2018