



Amoxicillin - PRODUCT DATA SHEET

Version 2.0

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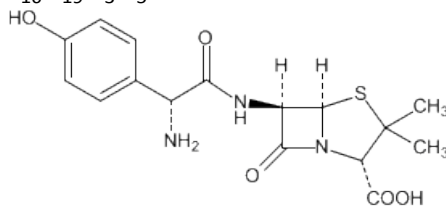
Product Name: Amoxicillin

Product Number: A004

CAS Number: 26787-78-0

Chemical Formula: C₁₆H₁₉N₃O₅S

Structure:



Molecular Weight: 365.40

Appearance: White or almost white crystalline powder

Description: Amoxicillin is a penicillin-based semi-synthetic antibiotic analog of ampicillin. It has a broad spectrum of activity including both Gram-positive and Gram-negative bacteria. Like other penicillins, it works by breaking up the peptidoglycan links in cell walls of non-resistant bacteria and triggers the release autolysins which further break down the cell wall.

Storage Temperature: 2-8°C. In an airtight container.

Mechanism of Action: Amoxicillin binds to penicillin-binding protein 1A (PBP-1A) located inside the bacterial cell wall. Penicillins acylate the penicillin-sensitive transpeptidase C-terminal domain by opening the lactam ring. This inactivation of the enzyme prevents the formation of a cross-link of two linear peptidoglycan strands, inhibiting the third and last stage of bacterial cell wall synthesis. Cell lysis is then mediated by bacterial cell wall autolytic enzymes such as autolysins; it is possible that amoxicillin interferes with an autolysin inhibitor.

Antimicrobial Potency for Amoxicillin:

Organism	MIC50 (µg/ml)	MIC90 (µg/ml)	Range (µg/ml)
<i>Acinetobacter antitratus</i>			>16

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<i>Acinetobacter baumannii</i>			16-?
<i>Bacillus subtilis</i>			1.56-?
<i>Bacillus subtilis</i> (03)			0.5-?
<i>Branhamella catarrhalis</i>	0.25		
<i>Citrobacter diversus</i>	>16		
<i>Citrobacter freundii</i>	>16		
<i>Enterobacter aerogenes</i>	>16		
<i>Enterobacter aerogenes</i> (SA19)			>16-?
<i>Enterobacter agglomerans</i>	>16		
<i>Enterobacter cloacae</i>	>16		
<i>Enterobacter cloacae</i> (N1)			>16-?
Enterococci	0.5		
<i>Enterococcus faecalis</i>	0.25	0.5	0.25-0.5
<i>Enterococcus faecalis</i>	0.5	1	0.5-1
<i>Enterococcus faecalis</i>		>16	0.5-?
<i>Enterococcus faecalis</i> (vancomycin-resistant)	0.5	>8	0.25->8
<i>Enterococcus faecalis</i> (vancomycin-resistant)	0.25	16	0.25-16
<i>Enterococcus faecalis</i> (vancomycin-susceptible)	0.5	1	0.5-1
<i>Enterococcus faecium</i>	2	16	0.12-32
<i>Enterococcus faecium</i>	64	64	0.5->128
<i>Enterococcus faecium</i>		>16	
<i>Enterococcus faecium</i> (vancomycin-resistant)	16	32	1-32
<i>Enterococcus faecium</i> (vancomycin-resistant)	>8	>8	2->8
<i>Enterococcus faecium</i> (vancomycin-susceptible)	0.5	>8	0.12->8
<i>Escherichia coli</i>	4	>128	0.5->128
<i>Escherichia coli</i>	8		
<i>Escherichia coli</i>	2	>128	0.5-128
<i>Escherichia coli</i>			3.12-?
<i>Escherichia coli</i> (12)			0.5-?
<i>Escherichia coli</i> (26)			>1000-?
<i>Escherichia coli</i> (311)			>128-?
<i>Escherichia coli</i> (41548)			>16-?
<i>Escherichia coli</i> (ATCC 25922)			8-?
<i>Escherichia coli</i> (C11)			0.5-?
<i>Escherichia coli</i> (NCTC 10418)			8-?
<i>Escherichia coli</i> (UT117)			4-?
<i>Haemophilus influenzae</i>	1	>8	<0.06->8
<i>Haemophilus influenzae</i>	0.5	32	0.5-32
<i>Haemophilus influenzae</i>	0.5	>64	0.25->64
<i>Haemophilus influenzae</i>	0.5	8	0.25-16
<i>Haemophilus influenzae</i> (ATCC 49247)			4-?
<i>Haemophilus influenzae</i> (ESBL)	>32	>32	4->32
<i>Haemophilus influenzae</i> (ESBL)	>16		

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<i>Haemophilus influenzae</i> (H128)			>16-?
<i>Haemophilus influenzae</i> (LS-2)			0.25-?
<i>Haemophilus influenzae</i> (LS-3)			0.125-?
<i>Haemophilus influenzae</i> (Neqas 4012)			8-?
<i>Haemophilus influenzae</i> (non-ESBL)	0.5	1	0.12-4
<i>Haemophilus influenzae</i> (non-ESBL)	0.25		
<i>Haemophilus influenzae</i> (RD-51907)			0.125-?
<i>Haemophilus influenzae</i> (speeding)			1-?
<i>Haemophilus influenzae</i> (TUM8)			250-?
<i>Helicobacter pylori</i>	0.031	0.031	0.015-0.5
<i>Helicobacter pylori</i>	0.031	0.125	≤0.008-0.5
<i>Helicobacter pylori</i>	0.002	0.06	0.002-0.06
<i>Helicobacter pylori</i> (ATCC 43504)			0.063-?
<i>Helicobacter pylori</i> (ATCC 43579)			0.03-0.06
<i>Helicobacter pylori</i> (NCTC 11637)			0.016-?
<i>Helicobacter pylori</i> (NCTC 11916)			0.016-?
<i>Helicobacter pylori</i> (SHP 107)			0.016-?
<i>Helicobacter pylori</i> (SHP 133)			0.016-?
<i>Klebsiella pneumoniae</i>	64	>128	1->128
<i>Klebsiella pneumoniae</i>	>16		
<i>Klebsiella pneumoniae</i>	128	>128	32->128
<i>Klebsiella pneumoniae</i> (3K25)			>128-?
<i>Klebsiella pneumoniae</i> (ATCC 13883)			>16-?
<i>Klebsiella pneumoniae</i> (E70)			>16-?
<i>Klebsiella pneumoniae</i> (KP1)			>16-?
<i>Klebsiella pneumoniae</i>			12.5-?
<i>Legionella pneumophila</i>	0.5	1	≤0.063-1
<i>Moraxella catarrhalis</i>	4	8	<0.06->8
<i>Moraxella catarrhalis</i>	2	4	≤0.063-8
<i>Moraxella catarrhalis</i>	2	8	≤0.008->8
<i>Moraxella catarrhalis</i>	2	8	≤0.015-32
<i>Moraxella catarrhalis</i> (CL2)			8-?
<i>Moraxella catarrhalis</i> (Ravasio)			4-?
<i>Morganella morganii</i>	>16		
<i>Neisseria meningitidis</i>	>0.06		
Pneumococci (penicillin-intermediate)	0.125	1	<0.008-0.25
Pneumococci (penicillin-intermediate)	2	2	0.5-4.0
Pneumococci (penicillin-susceptible)	0.016	0.03	<0.008-0.25
<i>Proteus mirabilis</i>	1		
<i>Proteus mirabilis</i> (33)			>1000-?
<i>Proteus mirabilis</i> (C889)			>16-?
<i>Proteus mirabilis</i> (W229)			>16-?
<i>Proteus vulgaris</i>	>16		

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<i>Providencia rettgeri</i>	>16		
<i>Providencia stuartii</i>	>16		
<i>Pseudomonas aeruginosa</i>	>16		
<i>Pseudomonas aeruginosa</i>			>200-?
<i>Pseudomonas aeruginosa</i> (10662)			256-?
<i>Pseudomonas aeruginosa</i> (4)			>16-?
<i>Pseudomonas aeruginosa</i> (K799wt)			>16-?
<i>Pseudomonas aeruginosa</i> (Z61)			0.5-?
<i>Pseudomonas cepacia</i>	>16		
<i>Pseudomonas fluorescens</i>	>16		
<i>Pseudomonas putida</i>	>16		
<i>Pseudomonas stutzeri</i>	2		
<i>Serratia marcescens</i>	>16		
<i>Serratia marcescens</i> (Ba58)			>16-?
<i>Serratia marcescens</i> (US20)			>16-?
Staphylococci (coagulase-negative + methicillin-resistant)	16	>32	4->32
Staphylococci (coagulase-negative + methicillin-resistant)	>8	>8	4->8
Staphylococci (coagulase-negative + methicillin-susceptible)	0.5	8	≤0.03-32
Staphylococci (coagulase-negative + methicillin-susceptible)	0.5	8	0.015->8
<i>Staphylococcus aureus</i>	>16	>16	0.06->16
<i>Staphylococcus aureus</i>			1.56-?
<i>Staphylococcus aureus</i>		>16	
<i>Staphylococcus aureus</i> (08)			0.5-?
<i>Staphylococcus aureus</i> (16)			0.5-?
<i>Staphylococcus aureus</i> (18)			0.5-?
<i>Staphylococcus aureus</i> (25)			0.5-?
<i>Staphylococcus aureus</i> (27)			256-?
<i>Staphylococcus aureus</i> (5)			64-?
<i>Staphylococcus aureus</i> (coagulase-negative + ESBL)	0.5		
<i>Staphylococcus aureus</i> (coagulase-negative + non-ESBL)	0.25		
<i>Staphylococcus aureus</i> (ESBL)	0.25		
<i>Staphylococcus aureus</i> (glycopeptide intermediate)	32	>32	1->32
<i>Staphylococcus aureus</i> (glycopeptide-intermediate)	>8	>8	2->8
<i>Staphylococcus aureus</i> (methicillin-resistant + mupirocin-resistant)	64	>64	32->64
<i>Staphylococcus aureus</i> (methicillin-resistant)	>32	>32	32->32
<i>Staphylococcus aureus</i> (methicillin-resistant)	64	64	8-128
<i>Staphylococcus aureus</i> (methicillin-resistant)	64	>64	8->64
<i>Staphylococcus aureus</i> (methicillin-resistant)	>8	>8	>8-?
<i>Staphylococcus aureus</i> (methicillin-resistant)	>16		
<i>Staphylococcus aureus</i> (methicillin-susceptible)	>32	>32	0.25->32
<i>Staphylococcus aureus</i> (methicillin-susceptible)	4	16	0.25-64
<i>Staphylococcus aureus</i> (methicillin-susceptible)	2	8	0.12-64
<i>Staphylococcus aureus</i> (methicillin-susceptible)	>8	>8	0.12->8

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<i>Staphylococcus aureus</i> (methicillin-susceptible)	2	8	0.125-64
<i>Staphylococcus aureus</i> (ML 123)			0.5-?
<i>Staphylococcus aureus</i> (NCTC 6571)			0.125-?
<i>Staphylococcus aureus</i> (non-ESBL)	8		
<i>Staphylococcus aureus</i> (Oxford)			0.125-?
<i>Staphylococcus aureus</i> (Smith)			0.125-?
<i>Staphylococcus aureus</i> (WCUH29)			>64-?
<i>Staphylococcus epidermidis</i>		8-16	
<i>Staphylococcus epidermidis</i>	0.25	0.5	≤0.06->64
<i>Staphylococcus epidermidis</i>	4	>16	0.06->16
<i>Staphylococcus epidermidis</i> (methicillin-resistant)	8	32	1-64
<i>Staphylococcus epidermidis</i> (methicillin-resistant)	8		
<i>Staphylococcus epidermidis</i> (methicillin-susceptible)	0.5	2	0.125-8
<i>Staphylococcus saprophyticus</i>	0.25	0.5	0.25-16
<i>Staphylococcus saprophyticus</i> (31)			0.25-?
<i>Stenotrophomonas maltophilia</i>	>16		
<i>Stenotrophomonas maltophilia</i> (NCTC 10257)			>16-?
<i>Stenotrophomonas maltophilia</i> (RC1)			>16-?
<i>Streptococci</i> (<i>Viridans</i> group)	0.03	8	≤0.008->8
<i>Streptococcus agalactiae</i>	0.06	0.06	0.03-0.06
<i>Streptococcus agalactiae</i>	0.03	0.06	≤0.008-0.06
<i>Streptococcus agalactiae</i>	≤0.06		
<i>Streptococcus faecalis</i>			1.56-?
<i>Streptococcus faecalis</i> (32)			0.25-?
<i>Streptococcus pneumoniae</i>	0.03	0.12	≤0.015-8
<i>Streptococcus pneumoniae</i>	≤0.06		
<i>Streptococcus pneumoniae</i>	0.03	0.5	0.016-1
<i>Streptococcus pneumoniae</i>	0.016	2	≤0.008-2
<i>Streptococcus pneumoniae</i> (ATCC 5303 parent)			0.008-?
<i>Streptococcus pneumoniae</i> (ATCC 6303 parent)			0.03-?
<i>Streptococcus pneumoniae</i> (methicillin-resistant)	2	4	1-4
<i>Streptococcus pneumoniae</i> (methicillin-susceptible)	0.032	0.5	0.008-0.5
<i>Streptococcus pneumoniae</i> (N1387)			2-?
<i>Streptococcus pneumoniae</i> (<i>pbp2x</i> and <i>pbp2b</i> or <i>pbp1a</i> and <i>pbp2x</i> genes abnormal + penicillin-intermediate)	0.125	0.5	0.063-0.5
<i>Streptococcus pneumoniae</i> (<i>pbp2x</i> gene abnormal + penicillin-intermediate)	0.063	0.063	0.016-0.25
<i>Streptococcus pneumoniae</i> (<i>pbpla</i> , <i>pbp2x</i> , and <i>pbp2b</i> genes abnormal + penicillin-resistant)	1	2	0.25-4
<i>Streptococcus pneumoniae</i> (penicillin G-intermediate)		1	0.015-1
<i>Streptococcus pneumoniae</i> (penicillin G-resistant)		2	0.5-2
<i>Streptococcus pneumoniae</i> (penicillin G-susceptible)		0.03	0.008-0.03
<i>Streptococcus pneumoniae</i> (penicillin-intermediate)	0.12	0.25	0.03-0.5
<i>Streptococcus pneumoniae</i> (penicillin-intermediate)	0.25	0.25	0.06-0.5

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<i>Streptococcus pneumoniae</i> (penicillin-intermediate)	0.25	1	0.03-2
<i>Streptococcus pneumoniae</i> (penicillin-resistant)	0.5	4	0.5-4
<i>Streptococcus pneumoniae</i> (penicillin-resistant)	2	4	1-4
<i>Streptococcus pneumoniae</i> (penicillin-resistant)	1	8	0.5-8
<i>Streptococcus pneumoniae</i> (penicillin-susceptible)	≤0.015	≤0.015	≤0.015-0.12
<i>Streptococcus pneumoniae</i> (penicillin-susceptible)	<0.008	0.03	≤0.008-0.03
<i>Streptococcus pneumoniae</i> (penicillin-susceptible)	0.016	0.031	0.008-0.063
<i>Streptococcus pneumoniae</i> (penicillin-susceptible)	0.015	0.015	≤0.008-0.03
<i>Streptococcus pneumoniae</i> (R1)			2-?
<i>Streptococcus pneumoniae</i> (R2)			2-?
<i>Streptococcus pneumoniae</i> (TUH39 + penicillin-susceptible)			4-?
<i>Streptococcus pneumoniae</i> (TUH39)			0.03-?
<i>Streptococcus pneumoniae</i> (TUM741 + penicillin-resistant)			1-?
<i>Streptococcus pyogenes</i>	≤0.008	≤0.008	≤0.008-0.5
<i>Streptococcus pyogenes</i>	≤0.008	0.015	≤0.008-0.015
<i>Streptococcus pyogenes</i>	0.016	0.016	0.016-0.125
<i>Streptococcus pyogenes</i>	≤0.06		
<i>Streptococcus pyogenes</i> (222)			0.016-?