

COMPOSITION OF COMMONLY USED TISSUE CULTURE MEDIA

Chemical Compound	Knop mg/l	Nitsch & Nitsch mg/l	MS mg/l	B5 mg/l	N6 mg/l	White mg/l	Heller mg/l	WPM mg/l	Vacin & Went mg/l	Knud son C mg/l	Shenk & Hilde brandt mg/l	Gressho f & Doy mg/l
1	2	3	4	5	6	7	8	9	10	11	12	13
(NH ₄) ₂ SO ₄	-	-	-	134	463	-	-	-	500	500	-	200
NH ₄ NO	-	720	1650	-	-	-	-	400	-	-	-	1000
NH ₄ H ₂ P O ₄	-	-	-	-	-	-	-	-	-	-	300	300
NaNO ₃	-	-	-	-	-	-	600	-	-	1000	-	-
Na ₂ HPO ₄ . H ₂ O	-	-	-	-	-	-	-	-	-	-	-	30
NaH ₂ PO ₄	-	-	-	-	-	-	-	-	-	-	-	90
KNO ₃	250	950	1900	2500	2830	80	-	-	525	-	2500	-
Ca(NO ₃) ₂ .4H ₂ O	1000	-	-	-	-	300	-	576	-	-	-	-
CaCl ₂ . 2H ₂ O	-	166	440	150	166	-	75	96	250	-	200	150
MgSO ₄ . 7H ₂ O	250	185	370	250	185	720	250	370	250	250	400	250
KH ₂ PO ₄	250	68	170	-	400	-	125	170	-	250	-	-
NaH ₂ PO ₄ . H ₂ O	-	-	-	150	-	16.5	-	-	-	-	-	-
Na ₂ SO ₄	-	-	-	-	-	200	-	-	-	-	-	-
Fe ₂ (SO ₄) ₃	-	-	-	-	-	2.5	-	-	-	-	-	-
FeSO ₄ . 7H ₂ O	-	27.8	27.8	27.8	27.2	-	-	27.8	-	25.0	15.0	27.8
FeCl ₃ . 6H ₂ O	-	-	-	-	-	-	1.0	-	-	-	-	-
Fe ₂ Tartrat	-	-	-	-	-	-	-	-	28.0	-	-	-
Na ₂ EDTA	-	37.3	37.3	37.3	37.2	-	-	37.3	-	-	20.0	37.3
MnSO ₄ . 4H ₂ O	-	-	22.3	-	4.4	7.0	0.01	22.3	7.5	7.5	10.0	10.0
MnSO ₄ . H ₂ O	-	18.9	-	10.0	-	-	-	-	-	-	-	-
ZnSO ₂ . 7H ₂ O	-	10.0	8.6	2.0	1.5	3.0	1.0	8.6	-	0.331	1.0	3.0
H ₃ BO ₃	-	10.0	6.2	3.0	1.6	1.5	1.0	6.2	-	0.056	5.0	3.0
KI	-	-	0.83	0.75	0.8	0.75	0.01	-	-	-	1.03	0.75
KCl	-	-	-	-	-	65	750	-	-	-	-	-
Na ₂ MoO ₄ . 2H ₂ O	-	0.25	0.25	0.25	-	-	-	0.25	-	0.026	0.1	0.25
CuSO ₄ . 5H ₂ O	-	0.025	0.025	0.025	-	-	0.03	-	-	0.040	0.2	0.25
CoCl ₂ . 6H ₂ O	-	-	0.025	0.025	-	-	-	-	-	-	0.1	0.25
NiCl ₂ . 6H ₂ O	-	-	-	-	-	-	0.03	-	-	-	-	-
AlCl ₃	-	-	-	-	-	-	0.03	-	-	-	-	-
Biotin	-	0.05	-	-	-	-	-	-	-	-	-	-
Myi-inositol	-	100	100	100	-	-	-	100	-	-	100	10.0
Niacin	-	5.0	0.5	1.0	0.5	0.5	-	0.5	-	-	5.0	0.1
Pyridoxine-HCl	-	0.5	0.5	1.0	0.5	0.1	-	0.5	-	-	0.5	0.1
Thiamine-HCl	-	0.5	0.1	10.0	1.0	0.1	1.0	-	-	-	5.0	1.0
Glycine	-	2.0	2.0	-	2.0	3.0	-	-	-	-	-	-
Folic acid	-	0.5	-	-	-	-	-	-	-	-	-	-
Sucrosa	-	20000	30000	20000	50000	20000	20000	20000	20000	20000	30000	20000
Ca D-pantothenat	-	-	-	-	-	1.0	-	-	-	-	-	-
Adenin	-	-	-	-	-	-	-	-	-	-	67.5	-

**LABORATORY SCALE MS STOCK SOLUTION COMPOSITION
(6 STOCK VERSION)**

STOCK	COMPOUND / CHEMICAL MATERIAL	CONCENTRATION IN MS MEDIA (mg/liter)	CONCENTRATION IN STOCK SOLUTIONS (mg/liter)	MATERIAL BE WEIGHED (gram/100ml)	STOCK SOLUTION CONCENTRATION (TIMES)	AQUADEST SOLUTION/ STOCK VOLUME (ml)	PIPETED STOCK VOLUME (ml/1 liter media)
1	2	3	4	5	6	7	8
A or 1	NH ₄ NO ₃	1.650	16.500	16,5	10	1000	100
	KNO ₃	1.900	19.000	19	10	1000	100
B or 2	CaCl ₂ .2H ₂ O	440	4.400	4,4	10	1000	100
C or 3	MgSO ₄ .7H ₂ O	370	3.700	3,7	10	1000	100
	KH ₂ PO ₄	170	1.700	1,7	10	1000	100
	MnSO ₄ .4H ₂ O	16,9	169	0,169	10	1000	100
	ZnSO ₄ .7H ₂ O	8,6	86	0,086	10	1000	100
	H ₃ BO ₃	6,2	62	0,062	10	1000	100
D or 4	KI	0,83	33,2	0,0332	40	1000	25
	Na ₂ MoO ₄ .2H ₂ O	0,25	10	0,01	40	1000	25
	CoCl ₂ .6H ₂ O	0,025	1	0,001	40	1000	25
	CuSO ₄ .5H ₂ O	0,025	1	0,001	40	1000	25
E or 5 (Fe-EDTA)	FeSO ₄ .7H ₂ O	27,8	278	0,278	10	1000	100
	Na ₂ EDTA	37,3	373	0,373	10	1000	100
F or 6	Vitamin composition (Thyamine-HCL 0,4 mg/L, Glycine 2,0 mg/L, Nicotinic acid 0,5 mg/L dan Pyridoxine 0,5 mg/L)						

**LABORATORY SCALE MS STOCK SOLUTION COMPOSITION
(4 STOCK VERSION)**

STOCK	COMPOUND / CHEMICAL MATERIAL	CONCENTRATION IN MS MEDIA (mg/liter)	CONCENTRATION IN STOCK SOLUTIONS (mg/liter)	MATERIAL BE WEIGHED (gram/100ml)	STOCK SOLUTION CONCENTRATION (TIMES)	AQUADEST SOLUTION/ STOCK VOLUME (ml)	PIPETED STOCK VOLUME (ml/1 liter media)
1	2	3	4	5	6	7	8
A or 1 Macro Elemet	NH ₄ NO ₃	1.650	16.500	16,5	10	1000	100
	KNO ₃	1.900	19.000	19	10	1000	100
	CaCl ₂ .2H ₂ O	440	4.400	4,4	10	1000	100
	MgSO ₄ .7H ₂ O	370	3.700	3,7	10	1000	100
	KH ₂ PO ₄	170	1.700	1,7	10	1000	100
B or 2 Micro Element	MnSO ₄ .4H ₂ O	16,9	1.690	1,69	100	1000	10
	ZnSO ₄ .7H ₂ O	8,6	860	0,86	100	1000	10
	H ₃ BO ₃	6,2	620	0,62	100	1000	10
	KI	0,83	83	0,083	100	1000	10
	Na ₂ MoO ₄ .2H ₂ O	0,25	25	0,025	100	1000	10
	CoCl ₂ .6H ₂ O	0,025	2,5	0,0025	100	1000	10
	CuSO ₄ .5H ₂ O	0,025	2,5	0,0025	100	1000	10
C or 3 (Fe-EDTA)	FeSO ₄ .7H ₂ O	27,8	278	0,278	10	1000	100
	Na ₂ EDTA	37,3	373	0,373	10	1000	100
D or 4	Komposisi vitamin (Thyamine-HCL 0,4 mg/L, Glycine 2,0 mg/L, Nicotinic acid 0,5 mg/L dan Pyridoxine 0,5 mg/L)						