



# MR40 APPLICATION NOTE NO. 1

## MR40 Material Conversion Table

To convert the nominal MR40 reading value (Group 9) to other material groups, reference the look up table and material groups listed below. *Example: If the MR40 (Group 9) Reads 22% MC, then the corresponding Red Pine (Group 2) value would be 25%*

	Group 9	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 10	Group 11	
Absolute Measurement Range	5	5	6	6	6	4	5	8	7	1	1	
	6	6	7	7	7	5	6	9	8	1	1	
	7	7	8	8	8	6	6	10	9	1	1	
	8	8	10	10	9	7	7	11	11	1	1	
	9	9	11	11	10	8	8	12	12	1	1	
	10	10	12	12	11	9	9	13	13	1	1	
	11	12	13	14	12	10	10	14	14	1	1	
	12	13	14	15	13	11	11	15	15	1	1	
	13	14	15	16	14	12	12	15	16	1	1	
	14	15	16	17	15	13	13	16	17	2	1	
	15	17	17	19	15	14	14	17	19	2	1	
	16	18	18	20	16	15	15	18	20	2	2	
	17	19	20	21	17	16	15	19	21	3	2	
	18	20	21	23	18	17	16	20	22	3	2	
	19	22	22	24	19	18	17	20	23	4	2	
	20	23	23	25	20	19	18	21	24	4	3	
	21	24	24	26	21	20	19	22	25	5	3	
	22	26	25	28	22	22	20	23	26	7	4	
	23	27	26	29	23	23	21	23	27	8	4	
	24	28	27	30	24	24	22	24	28	9	5	
	25	30	28	32	25	25	23	25	29	11	6	
	26	31	29	33	26	26	23	25	30	13	7	
	27	33	30	34	26	27	24	26	31	16	8	
	28	34	32	36	27	28	25	27	32	19	9	
	29	35	33	37	28	29	26	28	33	22	10	
	Relative Range	30	37	34	38	29	30	27	28	34	26	12
		31	38	35	40	30	31	28	29	35	30	13
		32	40	36	41	31	33	29	30	36	35	15
		33	41	37	42	32	34	30	30	37	41	17
34		43	38	44	33	35	31	31	38	47	19	
35		44	39	45	33	36	31	32	39	54	21	
36		45	40	46	34	37	32	32	40	61	23	
37		47	41	48	35	38	33	33	41	70	26	
38		48	42	49	36	39	34	33	42	79	29	
39		50	43	50	37	40	35	34	43	90	32	
40		51	44	52	38	42	36	35	44		35	
41		53	45	53	39	43	37	35	45		39	
42		54	46	54	40	44	38	36	46		42	
43		56	48	56	40	45	39	37	47		47	
44		57	49	57	41	46	39	37	48		51	
45		59	50	58	42	47	40	38	49		56	
46		60	51	60	43	49	41	38	50		61	
47		62	52	61	44	50	42	39	51		66	
48		63	53	62	45	51	43	40	52		72	
49		65	54	64	45	52	44	40	53		78	
50		66	55	65	46	53	45	41	54		85	
51		68	56	66	47	54	46	41	55		92	
52		69	57	68	48	56	46	42	56		99	
53		71	58	69	49	57	47	43	57			
54		73	59	70	50	58	48	43	58			
55		74	60	72	51	59	49	44	59			
56		76	61	73	51	60	50	44	59			
57		77	62	74	52	61	51	45	60			
58		79	63	76	53	63	52	45	61			
59		80	64	77	54	64	53	46	62			
60		82	65	79	55	65	53	47	63			

### Notes on Material Groups 1 through 8

The MR40 will display accurate pin probe readings in the 5% to 30% range, depending on the tested material. Moisture Content readings below 5% will display as 0% for all materials and the maximum specified range is dependent on the fiber saturation point for specific species. Use the reading as a relative reference value only, above the fiber saturation point. For more information on fiber saturation, please refer to ASTM D7438. For additional information on Pin moisture measurement accuracy, please see ASTM D4444, section 6.

### Notes on Material Groups 10 and 11

Groups 10 and 11 provide basic moisture content estimations in the range of 0 ~ 20% (Group 10) and 0 ~ 9% (Group 11). Use these readings to identify problem areas but verify them using an RH-type concrete moisture meter per ASTM F2170. As such, even though the readings are presented in %MC by weight, they should be considered for reference only.

## Key for Material Groups

Groups 1 ~ 8 are for timbers, refer to Table below.

Group 9 is for plywood, drywall, and oriented strand board (OSB)

Group 10 is for brick, cement screed, and concrete

Group 11 is for cement mortar, anhydrite screed, lime mortar, and plaster

Group 10 and 11 are not specified for accuracy and should be used for reference only

**Common Names of Timbers (BS888/589:1973) with Group Numbers (1 ~ 8)**

Abura	4	Gurjun	1	Pine, American Long Leaf	3
Afara	1	Hemlock, Western	3	Pine, American Pitch	3
Aformosa	6	Hiba	8	Pine, Bunya	2
Afzelia	4	Hickory	5	Pine, Caribbean Pitch	3
Agba	8	Hyedunani	2	Pine, Corsican	3
Amboyna	6	Iroko	5	Pine, Hoop	3
Ash, American	2	Ironbank	2	Pine, Huon	2
Ash, European	1	Jarrah	3	Pine, Japanese Black	2
Ash, Japanese	1	Jelutong	3	Pine, Kauri	4
Ayan	3	Kapur	1	Pine, Lodgepole	1
Baguacu, Brazilian	5	Karri	1	Pine, Maritime	2
Balsa	1	Kauri, New Zealand	4	Pine, New Zealand White	2
Banga Wanga	1	Kauri, Queensland	8	Pine, Nicaraguan Pitch	3
Basswood	6	Keruing	5	Pine, Parana	2
Beech, European	3	Kuroka	1	Pine, Ponderosa	3
Berlina	2	Larch, European	3	Pine, Radiata	3
Binvang	4	Larch, Japanese	3	Pine, Red	2
Birch, European	8	Larch, Western	5	Pine, Scots	1
Birch, Yellow	1	Lime	4	Pine, Sugar	3
Bisselon	4	Loliondo	3	Pine, Yellow	1
Bitterwood	5	Mahogany, African	8	Poplar, Black	1
Blackbutt	3	Mahogany, West Indian	2	Pterygota, African	1
Bosquiea	1	Makore	2	Pyinkado	4
Boxwood, Maracaibo	1	Mansonia	2	Queensland Kauri	8
Camphorwood, E African	3	Maple, Pacific	1	Queensland Walnut	3
Canarium, African	2	Maple, Queensland	2	Ramin	6
Cedar, Japanese	2	Maple, Rock	1	Redwood, Baltic (European)	1
Cedar, West Indian	8	Maple, Sugar	1	Redwood, Californian	2

Cedar, Western Red	3	Matai	4	Rosewood, Indian	1
Cherry, European	8	Meranti, Red (dark/light)	2	Rubberwood	7
Chestnut	3	Meranti, White	2	Santa Maria	7
Coachwood	6	Merbau	2	Sapele	3
Cordia, American Light	5	Missanda	3	Sen	1
Cypress, E African	1	Muhuhi	8	Seraya, Red	3
Cypress, Japanese (18-28%mc)	3	Muninga	6	Silky Oak, African	3
Cypress, Japanese (8-18%mc)	8	Musine	8	Silky Oak, Australian	3
Dahoma	1	Musizi	8	Spruce, Japanese (18-28%mc)	3
Danta	3	Myrtle, Tasmanian	1	Spruce, Japanese (8-18%mc)	8
Douglas Fir	2	Naingon	3	Spruce, Norway (European)	3
Elm, English	4	Oak, American Red	1	Spruce, Sitka	3
Elm, Japanese Grey Bark	2	Oak, American White	1	Sterculia, Brown	1
Elm, Rock	4	Oak, European	1	Stringybark, Messmate	3
Elm, White	4	Oak, Japanese	1	Stringybark, Yellow	3
Empress Tree	8	Oak, Tasmanian	3	Sycamore	5
Erimado	5	Oak, Turkey	4	Tallowwood	1
Fir, Douglas	2	Obeche	6	Teak	5
Fir, Grand	1	Odoko	4	Totara	4
Fir, Noble	8	Okwen	2	Turpentine	3
Gegu, Nohor	7	Olive, E African	2	Utile	8
Greenheart	3	Olivillo	6	Walnut, African	8
Guarea, Black	8	Opepe	7	Walnut, American	1
Guarea, White	7	Padang	1	Walnut, European	3
Gum, American Red	1	Padauk, African	5	Walnut, New Guinea	2
Gum, Saligna	2	Panga Panga	1	Walnut, Queensland	3
Gum, Southern	2	Persimmon	6	Wandoo	8
Gum, Spotted	1	Pillarwood	5	Wawa	6
				Whitewood	3
				Yew	3