

## Coverage/ Spreading rate.

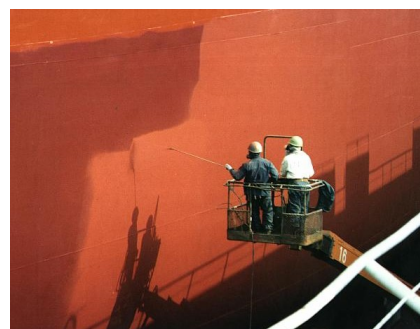
In Transocean datasheets for all products theoretical spreading rates are given. From this figure the theoretical consumption can be calculated as followed;

Theoretical consumption (l/m<sup>2</sup>)= 1/Theoretical spreading rate (m<sup>2</sup>/l).

However, this formula does not take loss factors into account. The choice of application method has a great influence on the total loss factor.

Application by brush or roller typically has loss factors of 10-15 % whereas application by conventional spray loss factors of 50% is no exemption. For airless spray usually a loss factor of 30% is assumed.

Other loss factors are roughness of the substrate (5-20% loss), uneven application (5-10% loss) and windy conditions (dependent on the wind force may range from 5 to 30% losses).



Introduction of the loss factor in the calculation leads to the terms practical spreading rate (m<sup>2</sup>/l) and finally to the practical consumption (l/m<sup>2</sup>).

It is clear that the loss factor always is an estimation based on the local conditions and the experience of the painter.

The table below gives the Theoretical spreading rate in m<sup>2</sup>/l for a desired dry film thickness at a given Volume solids percentage.

Volume solids (%) paint.	Required dry film thickness (micron).											
	25	50	75	100	125	150	175	200	225	250	300	400
100	40,0	20,0	13,3	10,0	8,0	6,7	5,7	5,0	4,4	4,0	3,3	2,5
95	38,0	19,0	12,7	9,5	7,6	6,3	5,4	4,8	4,2	3,8	3,2	2,4
90	36,0	18,0	12,0	9,0	7,2	6,0	5,1	4,5	4,0	3,6	3,0	2,3
85	34,0	17,0	11,3	8,5	6,8	5,7	4,9	4,3	3,8	3,4	2,8	2,1
80	32,0	16,0	10,7	8,0	6,4	5,3	4,6	4,0	3,6	3,2	2,7	2,0
75	30,0	15,0	10,0	7,5	6,0	5,0	4,3	3,8	3,3	3,0	2,5	1,9
70	28,0	14,0	9,3	7,0	5,6	4,7	4,0	3,5	3,1	2,8	2,3	1,8
65	26,0	13,0	8,7	6,5	5,2	4,3	3,7	3,3	2,9	2,6	2,2	1,6
60	24,0	12,0	8,0	6,0	4,8	4,0	3,4	3,0	2,7	2,4	2,0	1,5
55	22,0	11,0	7,3	5,5	4,4	3,7	3,1	2,8	2,4	2,2	1,8	1,4
50	20,0	10,0	6,7	5,0	4,0	3,3	2,9	2,5	2,2	2,0	1,7	1,3
45	18,0	9,0	6,0	4,5	3,6	3,0	2,6	2,3	2,0	1,8	1,5	1,1
40	16,0	8,0	5,3	4,0	3,2	2,7	2,3	2,0	1,8	1,6	1,3	1,0
35	14,0	7,0	4,7	3,5	2,8	2,3	2,0	1,8	1,6	1,4	1,2	0,9
30	10,0	5,0	3,3	2,5	2,0	1,7	1,4	1,3	1,1	1,0	0,8	0,6
25	40,0	20,0	13,3	10,0	8,0	6,7	5,7	5,0	4,4	4,0	3,3	2,5
20	38,0	19,0	12,7	9,5	7,6	6,3	5,4	4,8	4,2	3,8	3,2	2,4

Example: Suppose a dry film thickness of 100 micron has to be achieved with a paint having 50% volume solids.

From the table the theoretical spreading rate would be 5,0 m<sup>2</sup>/l.

### Deduction of new volume solids after thinning.

Thinning may be necessary to achieve a good painting result. Of course one should always take the correct thinner and use the appropriate amount. This information is mentioned in the product's datasheet but if in doubt always crosscheck with the local Transocean representative or the inspector on duty.

When thinning one has to realize the volume solids of the paint is lowered. As a result more wet film thickness has to be applied to achieve the necessary dry film thickness. From the table below it can be deducted how volume solids change when adding a certain amount of thinner.



Volume solids (%) before thinning	Percentage of thinner added.									
	1	2	3	4	5	7	10	12	15	20
100	99	98	97	96	95	93	91	89	87	83
95	94	93	92	91	90	89	86	85	83	79
90	89	88	87	87	86	84	82	80	78	75
85	84	83	83	82	81	79	77	76	74	71
80	79	78	78	77	76	75	73	71	70	67
75	74	74	73	72	71	70	68	67	65	63
70	69	69	68	67	67	65	64	63	61	58
65	64	64	63	63	62	61	59	58	57	54
60	59	59	58	58	57	56	55	54	52	50
55	54	54	53	53	52	51	50	49	48	46
50	50	49	49	48	48	47	45	45	43	42
45	45	44	44	43	43	42	41	40	39	38
40	40	39	39	38	38	37	36	36	35	33
35	35	34	34	34	33	33	32	31	30	29
30	30	29	29	29	29	28	27	27	26	25
25	25	25	24	24	24	23	23	22	22	21
20	20	20	19	19	19	19	18	18	17	17

Suppose a dry film thickness of 100 micron has to be achieved with a paint having 50% volume solids. Un thinned theoretically 200 microns wet has to be applied. However, when the paint is diluted with 10% thinner, new volume solids from table will be 45%.

As a result new wet film thickness to reach 100 micron dry is  $100/0,45 = 222$  microns.