



An Roinn Iompair Turasóireachta agus Spóirt Department of Transport, Tourism and Sport

ROADS Services Training Group LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION - 2018

Lyrath Estate Hotel, Kilkenny, May 2018.

LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION – 2018

Surface Dressing IAT Guidelines 3rd Edition Revised 2017

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An Roinn Iompair Turasóireachta agus Spóirt Department of Transport, Tourism and Sport

Surface Dressing on the Irish Road Network of 100,112km

Roads in Ireland	Length (km)	% Surface Dressed				
National Roads						
Motorway	916	0				
National Primary & Secondary	4390	25%				
	Non National Roads					
Regional	13162	75%				
Primary County	24177	82%				
Secondary County	33404	86%				
Tertiary County	24063	93%				

Why use Surface Dressing

Surface dressing renews Skid Resistance on existing roads, contributing to user safety.

Skid resistance is particularly important on roads with poor vertical or horizontal alignment-most of our roads.

Seals the road against the effects of moisture, prolonging the pavement life.

Provides a cost effective and durable method of road surfacing.

Durability: Road Surface Dressed 20 years 7800 vpd,5.5% HGV

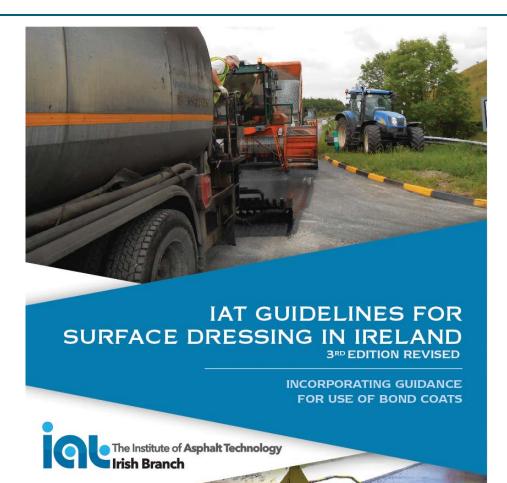


Guideline developments

- Foras Forbartha Report.....1977
- Surface Dressing (Blue Book).....1981
- IAT Review of S/D Practice.....1991
- IAT Guidelines for
 S/D in Ireland..... 2003
 (2nd Edition..... 2007)
 (3rd Edition.... 2014)
 (3rd Edition revised..2017)



IAT Guidelines for Surface Dressing 3rd Edition Revised 2017



Why revise the Guidelines

- The existing print (1500 copies) run almost exhausted.
- Need to reflect developments in Standards and Specifications.

Incorporate comments and observations from users.

Provide clarification where necessary ,e.g. seasonal factors, Surface Dressing on Trench reinstatement

Amendments

All references to Standards and Specifications amended throughout, references are up to date at time of printing (August 2017)

Section 1.1.3: SD on trenches-possibly two different surfaces, old & new

1.1.4: I.S. EN 12271 Surface Dressing by Contract requires CE marking provided by Contractor-SD is a Product

1.1.5: Mention of the TII Analytical Design Method

Amendments

1.2.3: Need to protect the lower layer in Double Surface dressing until the work is complete

- **1.2.4:** Use of Inverted Double SD on HRA.
- **2.1.1:** Refers to TII Binder Specification, now included in Appendix J
- 4.4.1: Design; Divide a road into sections where necessary; differing hardness, texture or local conditions
 Table 4 allows more use of 2/6mm chippings on hard
- low trafficked roads.

Surface Dressing with2/6mm chippings Texture Depth2.0mm

Amendments

Design Summary 1: Use 1.0 I/m² as basic ROS of binder for 2/6mm chippings

Design Summary 2: reduces ROS of Chippings to 3-4 I/m²

Design Summary 3: recommends the use of pad coat and Double SD

Design Summary 4: Allows adjustments to pad coat layer

Amendments

4.6.3: Sealing Footways and Cycleways – new section and Design summary 8

7.2.2: Dribble test on site to check for blocked jets on slot jet sprayers

Bond Coats reflect TII specification.

Confined sites, Footways



IAT Surface Dressing Guidelines 3rd Edition Revised

Design Sheet

	ING ROAD Road N		Ins Cocation Battinity	Date pected 26	7/2015
	AL: (Note 1) Type of C atings : Lean/Fat		y Ravelling 1 Patched 1 Tracking 3		ility L
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	AYER Binder		@Vmª Chio Size/Source _2/6 mm, exCasey's	@	6 V
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E I	See Section 4.3.1	Juby	For full width hard shoulders use 80% of traffic volume	1111	-
	COMMERCIAL	77			
	TRAFFIC	HCV/lane/day	Handhar da e ta al e ta		
		The volume only			
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	choosen will not settle into exsisting surface texture)	1.96 mm	% Adjustment: -5 0 +5 +10 +15 +20	-	10-00
			Bleeding Smooth Coarse		2.17
~	FLAKINESS		Flakiness % 5 10 15 20 25	+ 11	+
CHIPPINGS	(Specified maximum limits: 20% for 10/14, 25% for 6/10)	9 %	% Adjustment: +15 +10 +5 0 -2	-	- NG
Ь			Rounded Faces % 30 15 0		The C
5	GRAVEL	%		+	* E
	CHIPPINGS	Rounded	% Adjustment: +10 0		
	If total (Section 2)	adjustments	exceed 30%, check suitability of S/D Total	+ 26 %	+
	Basic Rate of Spre	ad 1	Adjustments		
	from Section 1, ab	ove, l/m ² 2	ADJUSTED RATE OF SPREAD I/m ³	2.5	
SEC	TION 3	22.2	FINAL ADJUSTED RATE OF SPREAD (See Note 3)	And a state	140
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AMA	L ADJUSTMENTS: I/m ²	Season +		- AL	-
	IGN RATE	GENER	AL Shaded High Alt. Uphill North	acing	Porous

IAT Surface Dressing

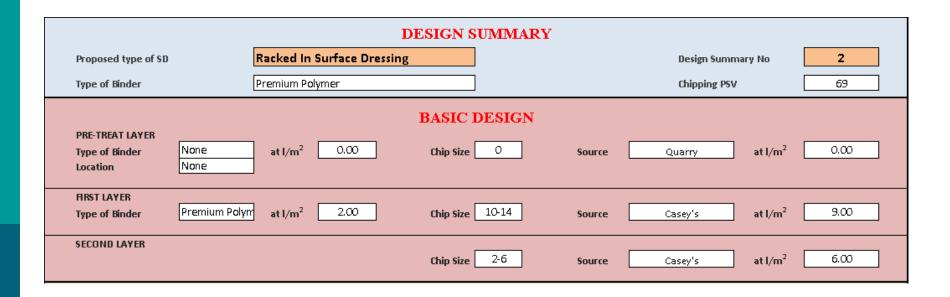
Guidelines 3rd Edition

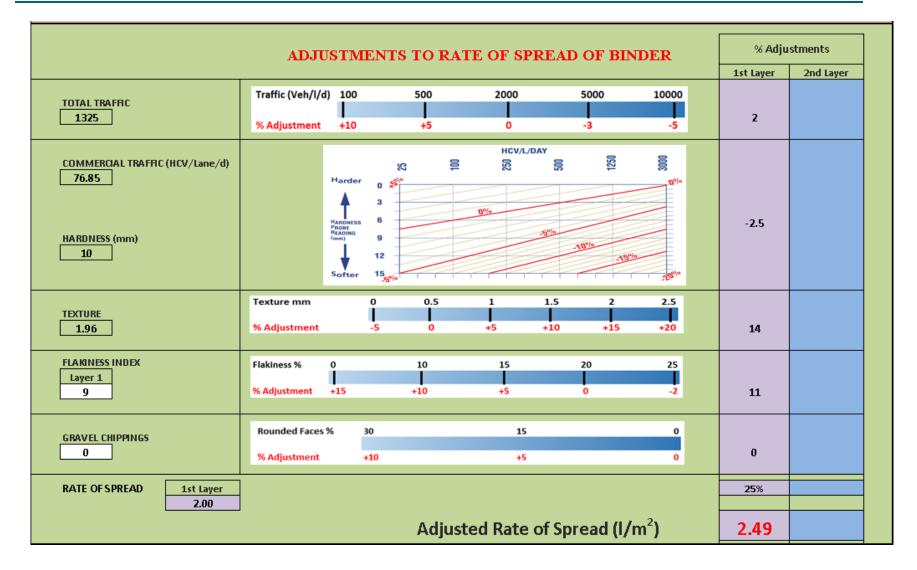
Revised

Digital Design Sheet

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SEASO 0.00 HIGH ROAD TEMP 0.00 HIPPING SIZE 0.20 SHADE 0.00 HIGH ALTITUDE 0.00 UPHILL 0.00 HORTH FACING 0.00 PORUS 0.00 0.00		2.00	l	Adjusted Rate o	f Spread (l/m ²)	2.49		
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SHADE 0.00 HIGH ALTITUDE 0.00 UPHILL 0.00 HORTH FACING 0.00 PORUS 0.00 0.00		SEASO 0.00			_	0.20		
HORTH FACING								
SPREAD OF BINDER - GENERAL 2.03 SHADED 2.69		SPREAD OF BINDER - GE SI	NERAL 2.69]			-	

The Institute of Asphalt Technology Irish Branch	SURFACE DRESSIN	IG DESIGN SHEET
E	XISTING ROAD PROPERTIES	
Road Number R733 Location	Balliniry	Date 28/04/2018
Road Authority/Clier	t Wexford County Council	PCSI Rating 7
Type of old road surface Surface Dressing	Hard Shoulder	No Speed limit 80 km/h
Lean/Fat (0-5 Ratings)	Porosity (0-5 Ratings)	AADT Vehicles/day 2650
Ravelling (0-5 Ratings)	Patched (0-5 Ratings)	HCV% % 5.80%
Tracking (0-5 Ratings) 3	Variability (0-5 Ratings)	Hardnessmm10Texturemm1.96









APPENDICES

APPENDIX G

Determination of Relative Chipping Size

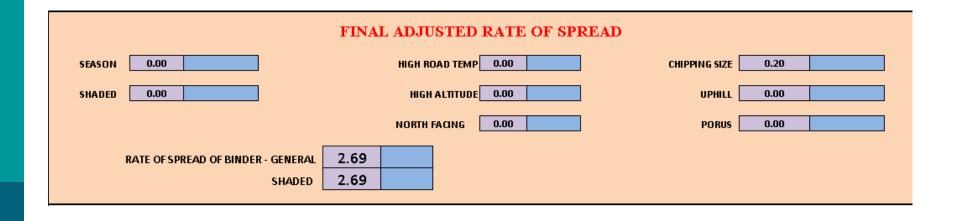
		10/14 (14 mm)			
14 mm	Sieve	12.5 m	12.5 mm Sieve		
% Passing	Factor 1	% Passing	, Facto		
85		47	13		
	6	48	12		
87		49	(11)		
88	4	50	10		
89	3	51	9		
90	2	52	8		
91	1	53	7		
92	0	54	6		
93	-1	55	5		
94	-2	56	4		
95	-3	57	3		
96	-4	58	2		
97	-5	59	1		
98	-6	60	0		
99	-7	61	-1		
		62	-2		
		63	-3		
		64	-4		
		65	-5		
		66	-6		
		67	-7		
		68	-8		
		69	-9		
		70	-10		
		71	-11		
		72	-12		
		73	-13		

Procedure

Using the grading analysis and the Table above, apply the appropriate factor for the percentage passing the 14 mm sieve and the 12.5 mm sieve. Get the average of these factors and apply the following adjustments to the rate of spread of the binder.

Factor Average	Adjustment	Chipping Size
Greater than 8	+ 0.2 l/m	Extra Large
Between 8 to 3	$+ 0.1 \mu m^2$	Large
Between 3 to -4	0.0 l/m ²	Medium
Less than -4	- 0.1 l/m ²	Small

For example:86% passing 14 mm sieve \Rightarrow Factor 1 = 656% passing 12.5 mm sieve \Rightarrow Factor 2 = 4Factor Average= (F1 + F2) / 2 = 5Adjustment in Rate of Spread= +0.1 l/m²



IAT Surface Dressing Guidelines 3rd Edition Revised

Design Sheet

XIST	ING ROAD Road No	mber £75	Location Ballniey	Date spected 26	7/2015
0-5 R	AL: (Note 1) Type of O atings : Lean/Fat	Porosit	e Sunface Trumy H/Shoulder Yes No y Ravelling 1 Patched 1 Tracking 5	Speed Limit Variab	ility 🕰
	TION 1.	ting Lan	BASIC DESIGN	in lexture	
	OF SID: Eached.	in		Chipping PS	V 69
	REAT LAYER Binder		@Vm ² Chip Size/Source mm, ex	0	U1
	Width 🗌 Wheel Track	Oil Track			
1st L	AYER Binder V	inflex	@2.0 Vm Chip Size/Source 10/14 mm, ex Careys	@	9 V
2nd I	LAYER Binder		@Vm' Chio Size/Source 2/6 mm, exCarry's		6 V
SECT	TION 2.	AD	JUSTMENTS TO RATE OF SPREAD OF BINDER		Sand
	Parameter	Actual Value	Design of Advances	% Adj 1st Layer	ustment
-	Parameter	value	Range of Adjustments	ist Layer	2nd Lay
	TOTAL	1325	Traffic (VelvI/d) 100 500 2000 5000 10000	+ 2.	+
÷	TRAFFIC	Vehicle/lane	% Adjustment +10 +5 0 -3 -5		
IRAFFIC	See Section 4.3.1	/day	For full width hard shoulders use 80% of traffic volume		
F			HCV/L/DAY		
	COMMERCIAL	77	25 100 500 500 3000		
		HCV/lane/day	Harder 0 5		
			4 3	+	+
			THEOREM 6		
9	HARDNESS	10 mm	Rozens Gorens 9	- 2	-
NO			12 10 150		
5	A CONTRACTOR		Softer 15		
NL					Dianie
EXISTING ROAD	TEXTURE		Texture (mm) 0 0.5 1.0 1.5 2.0 2.5	+ 15%	
ш	(Use only when chipping size choosen will not settle into exsisting surface texture)	1.96 mm	% Adjustment: -5 0 +5 +10 +15 +20	-	1440
			Bleeding Smooth Coarse		to ser
	FLAKINESS		Flakiness % 5 10 15 20 25	+ 11	ALL DE L
GS	INDEX (Specified maximum limits:	9 %			1.1.1
MIN	20% for 10/14, 25% for 6/10)		% Adjustment: +15 +10 +5 0 -2		
CHIPPINGS	C		Rounded Faces % 30 15 0		2
0	GRAVEL CHIPPINGS	%		+	
		Rounded	% Adjustment: +10 0		
	If total (Section 2)	adjustments	exceed 30%, check suitability of S/D Total Adjustments	+ 26 %	+
	Basic Rate of Sprea	ad 1	LAYER 2" LAYER		
	from Section 1, ab	ove, l/m ²	ADJUSTED RATE OF SPREAD I/m ³	2.5	
SEC	TION 3	and the second	FINAL ADJUSTED RATE OF SPREAD (See Note 3)		* 4.7
		_		_	
FINA	LADJUSTMENTS: 1/m ²	Season +	+ High Road Temp. – – Chipping	Size ± to	.2
		GENER	AL Shaded High Alt. Uphill North	Facing	Porous
	SIGN RATE	2.7			

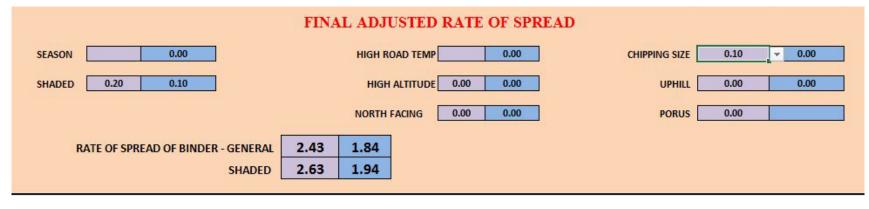


SURFACE DRESSING DESIGN SHEET

EXISTING ROAD PROPERTIES

			Second Street			a <u></u>
Road Number 1234	Location	Anywhere			Date	15/02/2018
Type of old road surface	Road Authority/Client	A Local Author Hard SI ty (0-5 Ratings) 0		No	PCSI Rating Speed limit Vehicles/day	80 km/h
				No of lanes		2
				HCV%	%	5.00%
		DESIGN SUMMARY				
Proposed type of SD	Sealing Unbound Layers/	Bituminous Cold Mixes		Design Sum	nmary No	7
Type of Binder	Cationic 70			Chipping PS	v	60+
		BASIC DESIGN				
PRE-TREAT LAYER				-	-	
Type of Binder Catonic 70	at I/m ² 0.00	Chip Size 0	Source	Quarry	at I/m ²	0.00
Location None						
FIRST LAYER				· · · · · ·	-	
Type of Binder Catonic 70	at I/m ^z 2.20	Chip Size 10-14	Source	Quarry	at l/m²	9.50
SECOND LAYER				-		· · · · · · · · · · · · · · · · · · ·
Type of Binder Catonic 70	at I/m ² 1.80	Chip Size 6-10	Source	Quarry	at I/m ²	7.00

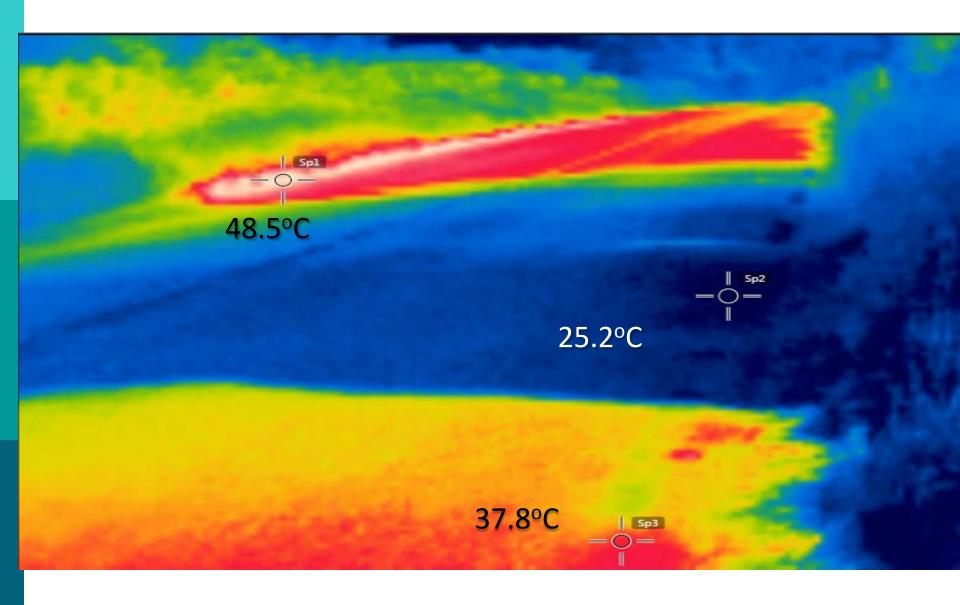
ADJUSTMENTS TO RATE OF SPREAD OF BINDER					% Adju	stments	
						1st Layer	2nd Layer
FLAKINESS INDEX Layer 1 Layer 2 14 18 When using a 2-6mm chip use a value of 20 for flakiness	Flakiness % 0 Adjustment +15	10 +10		20	25 -2	6	2
GRAVEL CHIPPINGS	Rounded Faces % % Adjustment	30 +10	- 19		0	0	0
RATE OF SPREAD 1st Layer 2.20	2nd Layer 1.80					6%	2%
		А	djusted Rate	e of Spread (l/m²)	2.33	1.84



NOTES

10/14mm Chipping racked with 2/6mm Finished surface, Texture Depth typically 2.75-3mm





For Successful Results

Get the Book, order from the IAT Irish Branch website

Read and study it.

Attend the Training Courses.

Apply the Guidelines to the work.

Plan and execute the work in Season.

Applications- Inverted Double SD on HRA



Road with variable texturepretreatment





SD on Microsurfacing on worn HRA





Thank You Have a Safe and Successful Season

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