



STORIMPEX AsphaltTEC

German Standard 2012

- Binder Course
 - AC 22 BS and AC 16 BS
 - Bitumen 25/55-55 or 30/45 or 10/40-65
 - Wheel tracking not specified but must be documented
 - Voids V_{min} 3.5 % - V_{max} 6.5
 - Binder content B_{min} 4.2 M.-% (AC 22 B S) and 4.4 M.-% (AC 16 B S)
 - Grading according to TL Asphalt-StB 07

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German Standard 2012

- Wearing Course
 - SMA 8 S and SMA 11 S
 - Bitumen 25/55-55 or 50/70
 - Wheel tracking not specified but must be documented
 - Voids V_{min} 2.5 – V_{max} 3.0
 - Binder content B_{min} 6.6 M.-% (SMA 11 S) and 7.2 M.-%(SMA 8 S)
 - Fiber or other substances 0.3 -1.5 M.-%
 - Grading according to TL Asphalt-StB 07

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German Standard 2012

- Does it work?
- Yes; this is a well proven design that stood the test of time.
- Problems?
 - If any; workmanship, workmanship; work.....
- Fit for future?
 - SMA with even 25/55-55 deforms under highest traffic on inclines and on truck parking areas, also on bus terminals. SMA with 10/40-65 successfully used as remedy





Client requirement for dimensioning

200 Van-Carrier - Axles 125 kN/day
 365 days / year
 life 20 Years

Result by APSDS & BISAR
 30 cm Schottertragschicht 0/45
 8 cm Binder 0/16
 6 cm SMA 0/16

With use of special bitumen

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Auf Schnelligkeit kommts an

**TATSÄCHLICH ABER:
 2600 Container- bzw
 1000 LKW-Bewegungen
 pro Tag**

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Construction in layers

1997 2002 2005

SMA 0/16 mm
 Binder 0/16 mm
 Mineral Base BMS mm
 Hydraulically bound base 0/32 mm

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(Hamburg) Wheel Tracking

	Year of construction	Track @		Delta 50° to 60° C [mm]
		50° C [mm]	60° C [mm]	
Container Terminal B	2000	3,2	18,3*	+15,5**
Container Terminal B	2000	3,0	12,6	+9,6
Container Terminal C	1998	2,2	3,7	+1,5
Container Terminal C	1998	4,0	6,4	+2,4

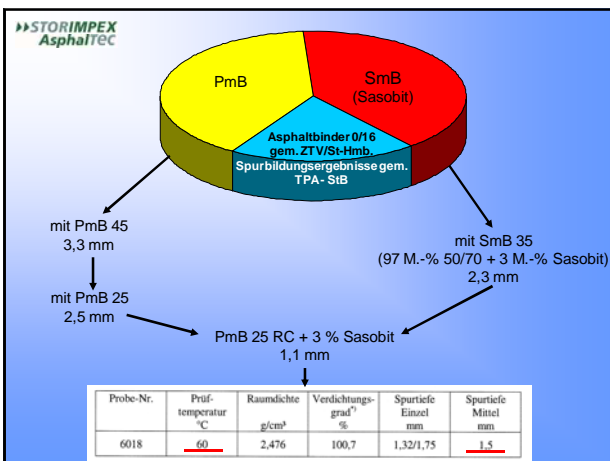
* Failure after 16600 asses, stripping
 ** Delta at failure point 16600

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	Baumaßnahme BAB A1	ZTV Asphalt StB	
Mischwerk A	Asphaltbinder 0/16	25 % RAP	elastic recovery 55 %
Mischwerk B	Asphaltbinder 0/16	26 % RAP	elastic recovery 54 %
Mischwerk C	Asphaltbinder 0/16	27 % RAP	elastic recovery 62 %
Mischwerk D	Asphaltbinder 0/16	28 % RAP	elastic recovery 62 %
Mischwerk E	Asphaltbinder 0/16	29 % RAP	elastic recovery 57 %
	Baumaßnahme BAB A1	ZTV/St-Hmb.	
Mischwerk B	Asphaltbinder 0/16	30 % RAP	elastic recovery 51 %
	Baumaßnahme B-5	ZTV/St-Hmb.	
Mischwerk B	Asphaltbinder 0/16	40 % RAP	elastic recovery 44 %



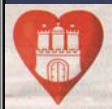
Proven Asphalt on Container Terminals in Hamburg				
Bezeichnung	Bitumen	RAP	Wheel tracking @ 50°C	Wheel tracking @ 60°C
Asphalttragschicht B 0/22	Smb 35 SD2	50 %	3,04 mm	
Asphalttragschicht CS 0/22	Smb 35 SD2	50 %	2,12 mm	
Asphalttragschicht CS 0/22	Caribit 25 RCSD4	30 %	2,12 mm	
Asphalttragschicht B 0/22	Smb 25 SD4	50 %	2,21 mm	
Asphalttragschicht CS 0/22	Nypol 25 HR	50 %	1,72 mm	3,28 mm
Asphaltbinder 0/16	Caribit 25 RCSD2	30 %		
Asphaltbinder 0/16 S	Caribit 25 RCSD3	20 %		1,90 mm
Asphaltbinder 0/16 S	Nypol 25 HR	20 %		2,65 mm
Asphaltbeton 0/8 hs	Caribit 25 RCSD4	20 %	1,94 mm	
Asphaltbeton 0/8 hs	Nypol 25 HR	20 %	1,44 mm	
Asphaltbeton 0/11 hs	Caribit 25 RCSD4	20 %		
Asphaltbeton 0/11 hs	Nypol 25 HR	20 %		
SMA 0/8	Caribit 25 RCSD4	20 %	1,12 mm	
SMA 0/8	Nypol 25 HR	20 %	1,55 mm	
SMA 0/16	Caribit 25 RCSD3	20 %		
SMA 0/16	Nypol 25 HR	20 %		3,31 mm
SMA 0/16	Caribit 25 RCSD	20 %		1,12 mm
SMA 0/16	Nypol 25 HR	20 %		1,52 mm

The Future.....

- Has anybody got money to pay for cost increase?
- Crumb Rubber appears to be a solution
- New pre activated dry compound for mixer addition
- Dosing like filler



The Future.....



-LICHEN DANK FÜR IHRE
AUFMERKSAMKEIT