

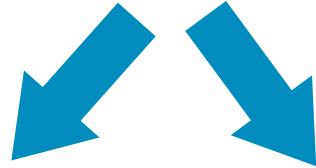
GS1 Barcodes – Core is EAN-13

For scanning trade items

Andrew
18.08.2021



To be differentiated



GS1 Numbering System

e.g. GTIN 4012345123456

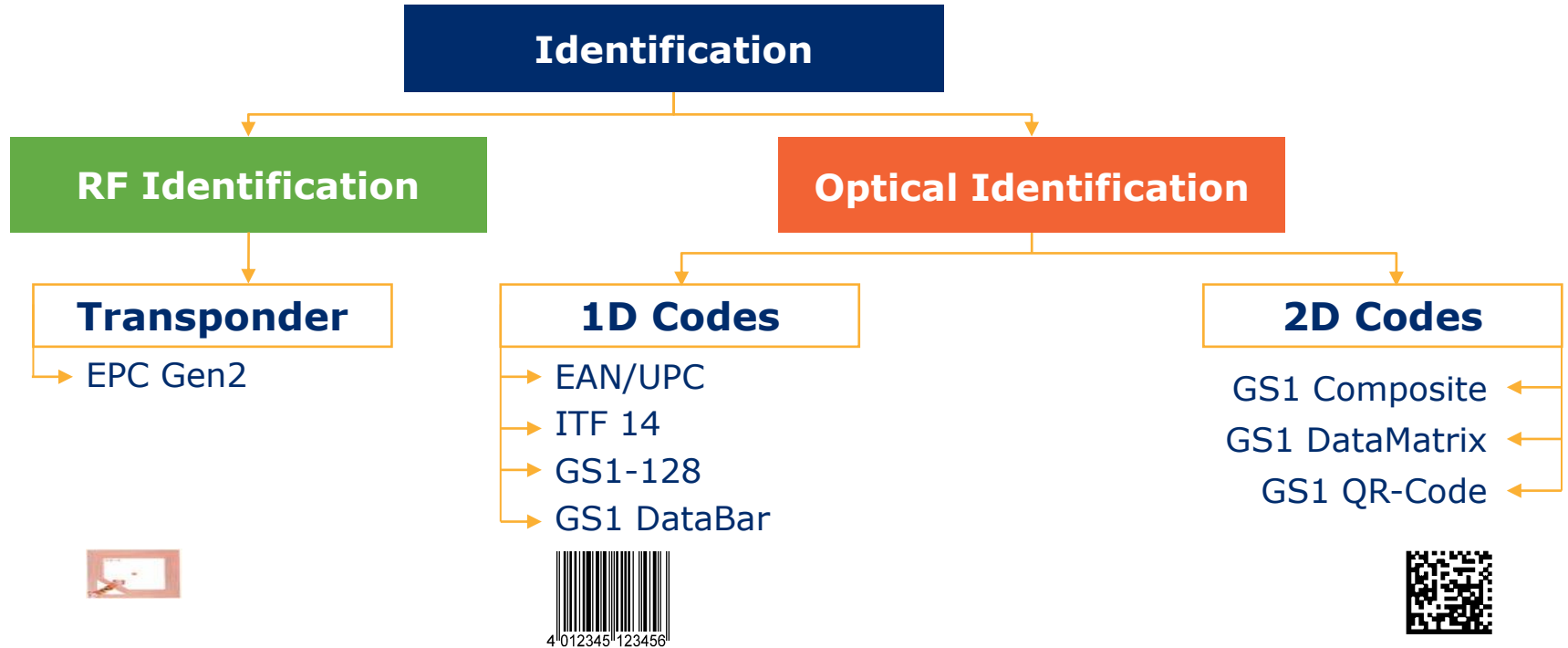


GS1 Barcode-Symbology

e.g. EAN Code



Date Carriers of the GS1 System



Globally established GS1 Barcodes

Consumer Unit



EAN Barcode Symbol



GS1 DataBar Symbol



Trading Unit



EAN Barcode Symbol



GS1-128 Barcode Symbol



Efficient processes at Point of Sale:

- Consistent system
- Machine readable information
- Omni-directional readability
- Readability of object in movement



Structure of the EAN Barcode

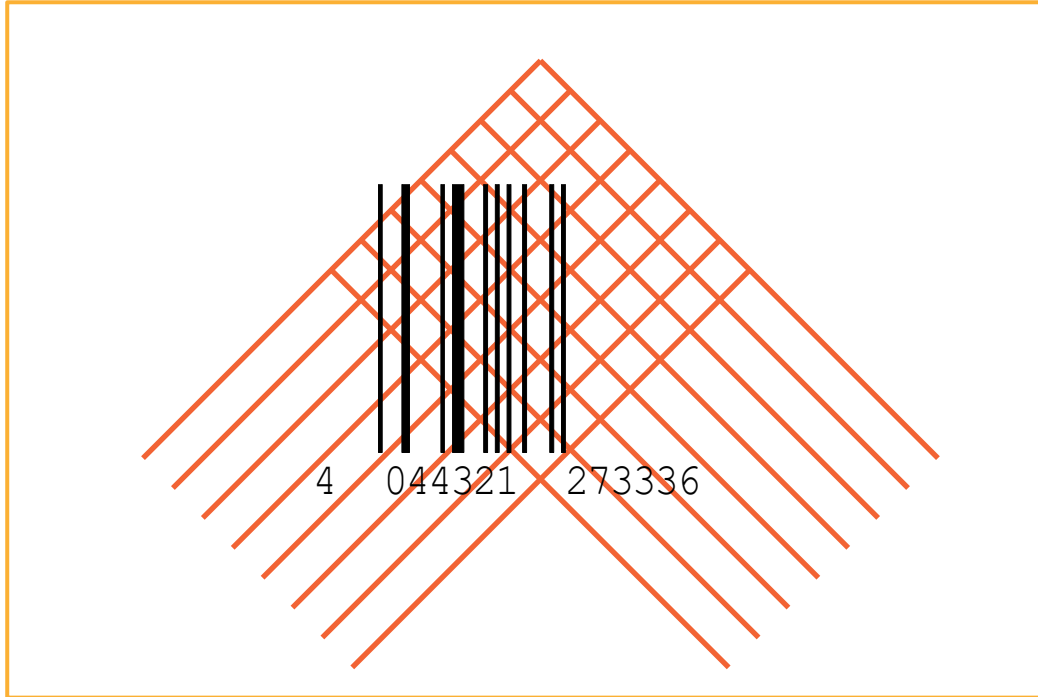
- contains:
 - Series of parallel dark bars
 - Of different widths
 - On light ground
 - Surrounded by a light zone



Scanning and omni-directional readability



Scanning and omni-directional readability



Structure of the 13 digit EAN Code (EAN-13)



AIPI

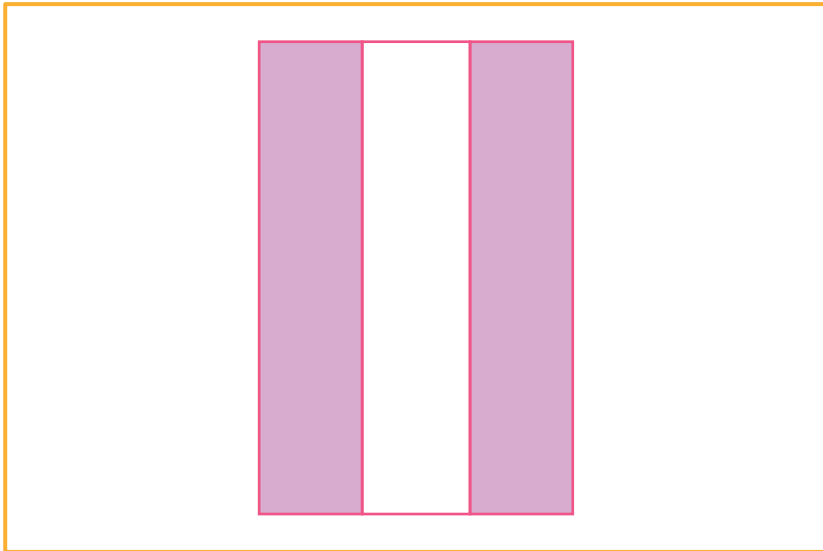
- A left Quiet Zone (11 modules)
- A normal guard bar pattern (3 modules)
- Six symbol characters from number sets A and B (7 modules each = 42 modules)
- A centre guard bar pattern (5 modules)
- Six symbol characters from number set C (7 modules each = 42 modules)
- A normal guard bar pattern (3 modules)
- A right Quiet Zone (7 modules)

- Sum: 113 modules

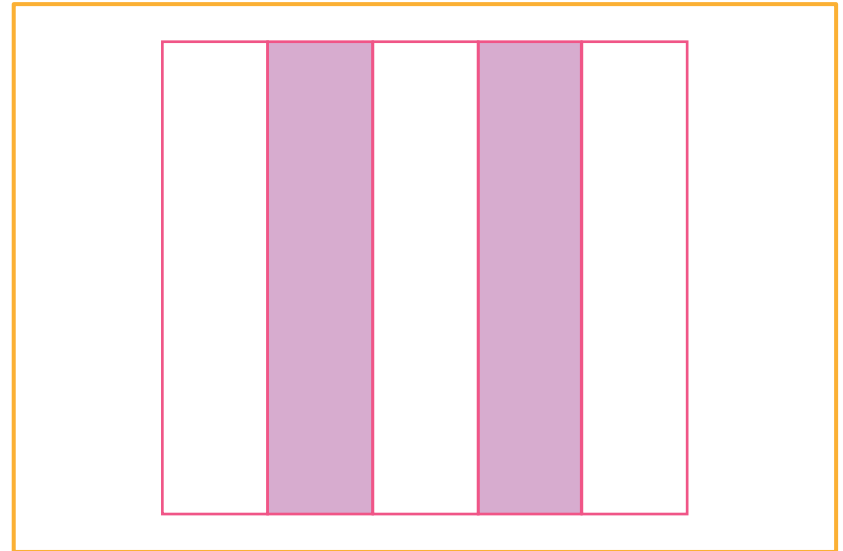


Guard Bar Pattern

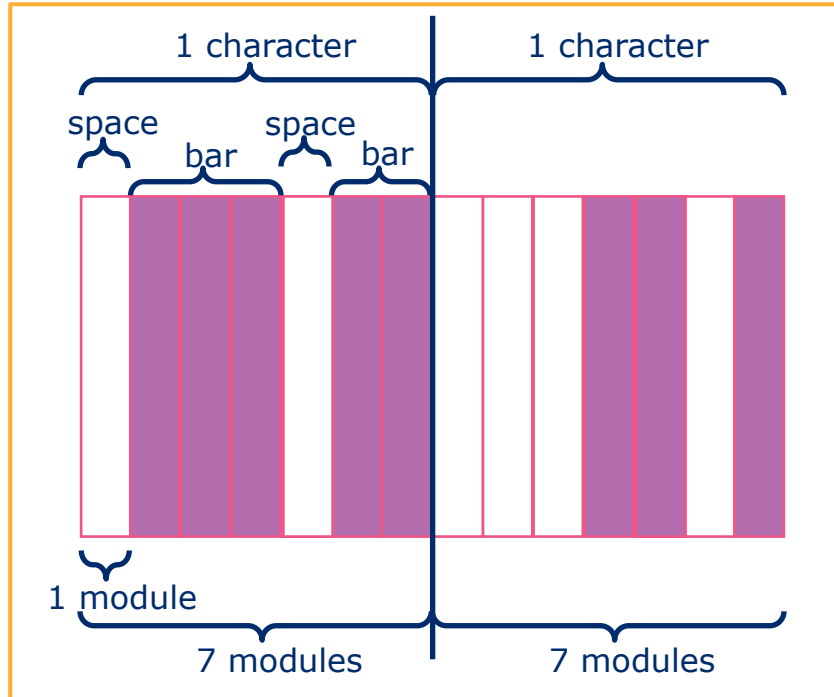
normal guard bar pattern (start und stop)



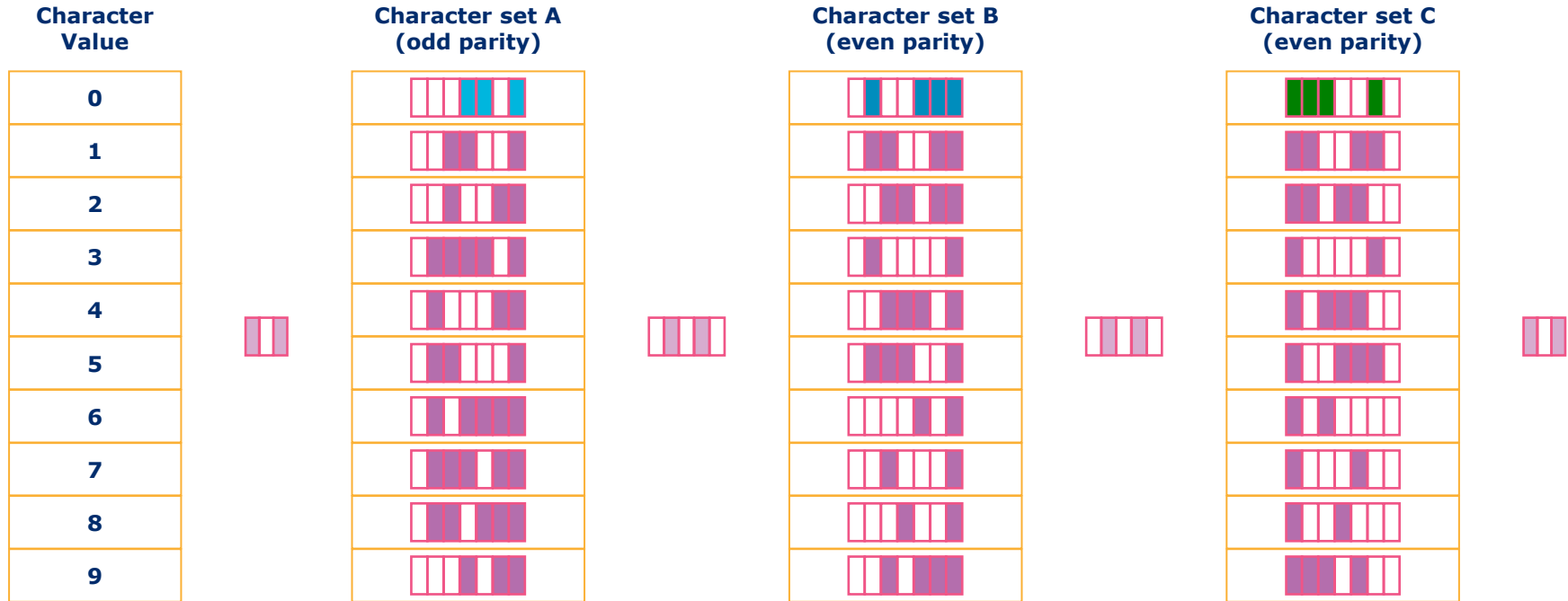
centre guard bar pattern



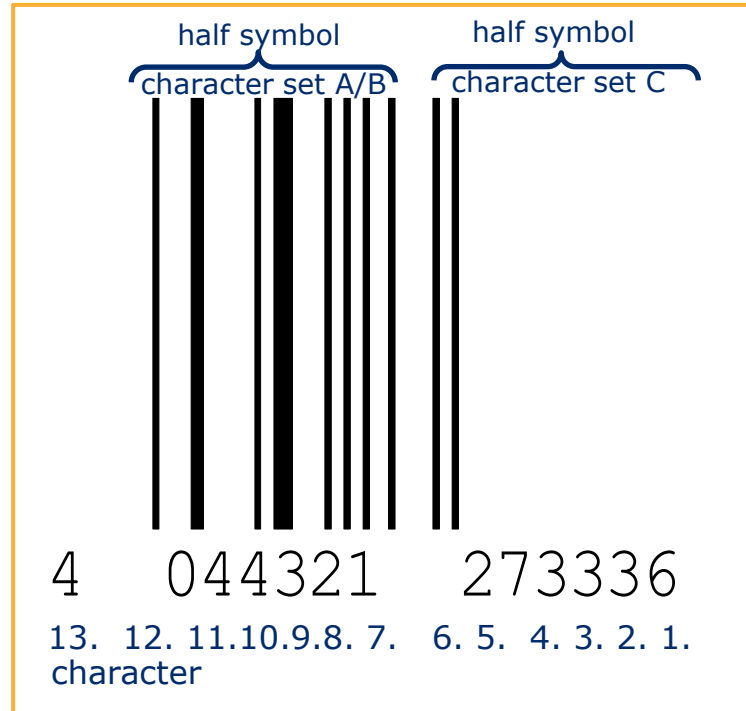
Structure of Character Values



Character sets and their usage



Use of different character sets



How to code 13. character from the right

Value of 13. character from the right						
	12	11	10	9	8	7
0	A	A	A	A	A	A
1	A	A	B	A	B	B
2	A	A	B	B	A	B
3	A	A	B	B	B	A
④	Ⓐ	Ⓑ	Ⓐ	Ⓐ	Ⓑ	Ⓑ
5	A	B	B	A	A	B
6	A	B	B	B	A	A
7	A	B	A	B	A	B
8	A	B	A	B	B	A
9	A	B	B	A	B	A



Symbology Identifier of EAN-13



- The symbology identifier is not encoded in the barcode but is generated by the decoder after decoding and is transmitted as a preamble to the data message.
 - Symbology identifier:]E0
 - Symbology format: EAN-13
 - Content: 13 digit

Barcode Sizes

- Different sizes possible SC 0 bis SC 9 (0,264 – 0,660mm)
- Choice dependent upon printing procedure
- Keep quiet zones in mind
- Try to avoid truncation

GS1 recommendations about symbol size

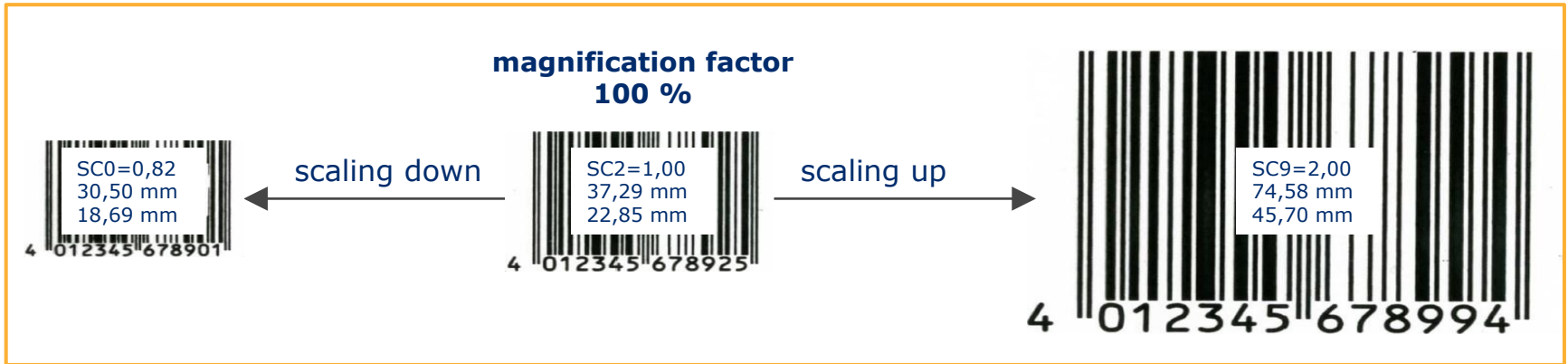
Schriftgröße	Vergrößerungsfaktor	ideale Modulbreite (X-Modul) [mm]	Abmessungen eines EAN-13-Symbols [mm]		Abmessungen eines EAN-8-Symbols [mm]	
			Breite ¹	Höhe ²	Breite	Höhe
SC 0	0,80	0,264	29,83	18,28	21,38	14,58
	0,818	0,270	30,50	18,69	21,87	14,91
	0,85	0,281	31,70	19,42	22,72	15,50
SC 1	0,90	0,297	33,56	20,57	24,06	16,41
	0,95	0,313	35,43	21,71	25,39	17,32
SC 2	1,00	0,330	37,29	22,85	26,73	18,23
	1,05	0,346	39,15	23,99	28,07	19,14
SC 3	1,10	0,363	41,02	25,14	29,40	20,05
	1,15	0,379	42,88	26,28	30,74	20,96
SC 4	1,20	0,396	44,75	27,42	32,08	21,88
	1,25	0,412	46,61	28,56	33,41	22,79
	1,30	0,429	48,48	29,71	34,75	23,70
SC 5	1,35	0,445	50,34	30,85	36,09	24,61
	1,40	0,462	52,21	31,99	37,42	25,52
	1,45	0,478	54,07	33,13	38,76	26,43
SC 6	1,50	0,495	55,94	34,28	40,10	27,35
	1,55	0,511	57,80	35,42	41,43	28,26
	1,60	0,528	59,66	36,56	42,77	29,17
SC 7	1,65	0,544	61,53	37,70	44,10	30,08
	1,70	0,561	63,39	38,85	45,44	30,99
	1,75	0,577	65,26	39,99	46,78	31,90
	1,80	0,594	67,12	41,13	48,11	32,81
SC 8	1,85	0,610	68,99	42,27	49,45	33,73
	1,90	0,627	70,85	43,42	50,79	34,64
	1,95	0,643	72,72	44,56	52,12	35,55
SC 9	2,00	0,660	74,58	45,70	53,46	36,46

¹ Breitenangabe inklusive Hellzone
² Höhenangabe ohne Klarschriftzeile



GS1 recommendations about symbol size

Choice between 80 % to 200 % magnification



Dependent upon printing procedure; consideration of quiet zones

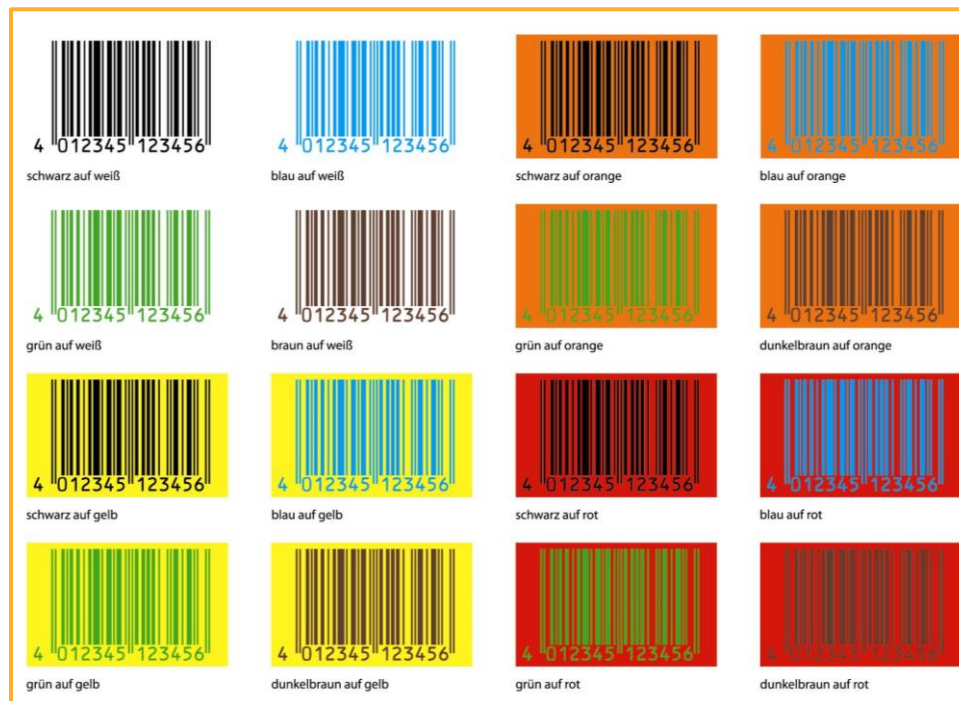
GS1 Recommendation on Colours



- Always: dark bars on light ground
- „Red“ only possible as ground colour, not as colour for bars
- Contrast between bars and spaces is significant. Black on white is optimum.
- Avoid reflective colours or materials

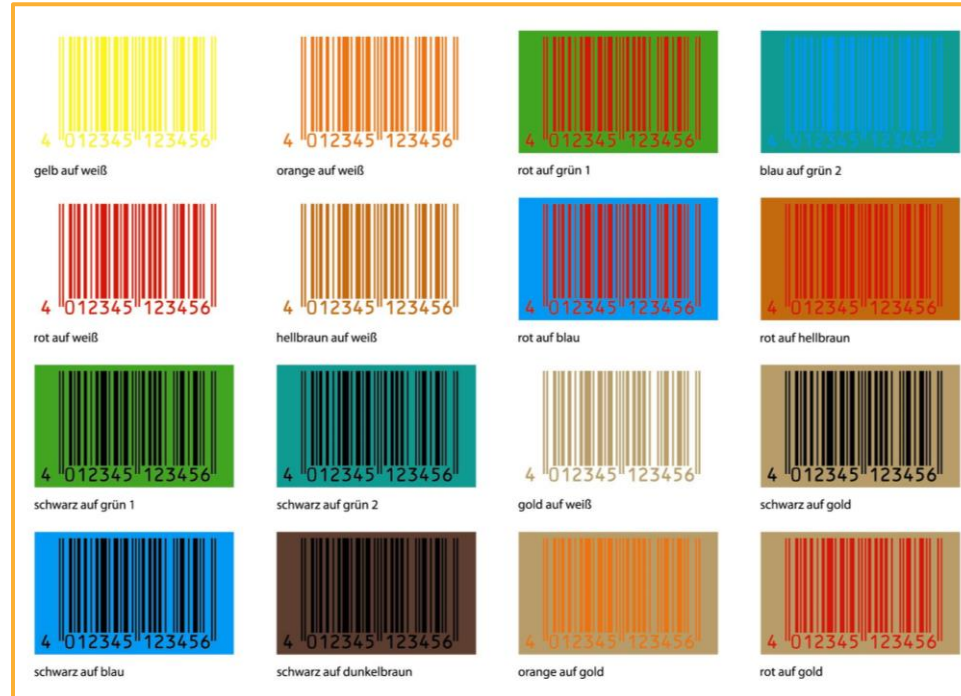
GS1 GS1 Recommendation on Colours

Yes



GS1 GS1 Recommendation on Colours

No



GS1 General Specifications

www.gs1.org/genspecs