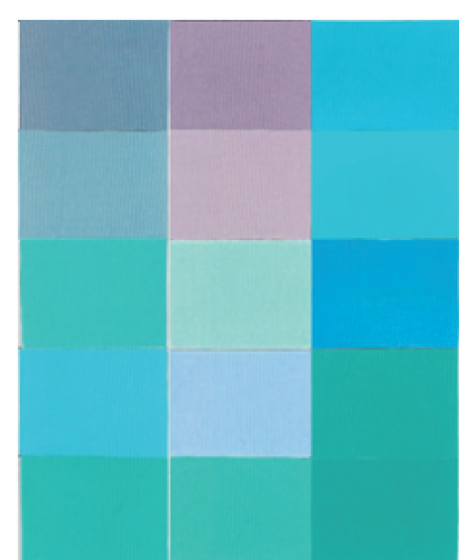
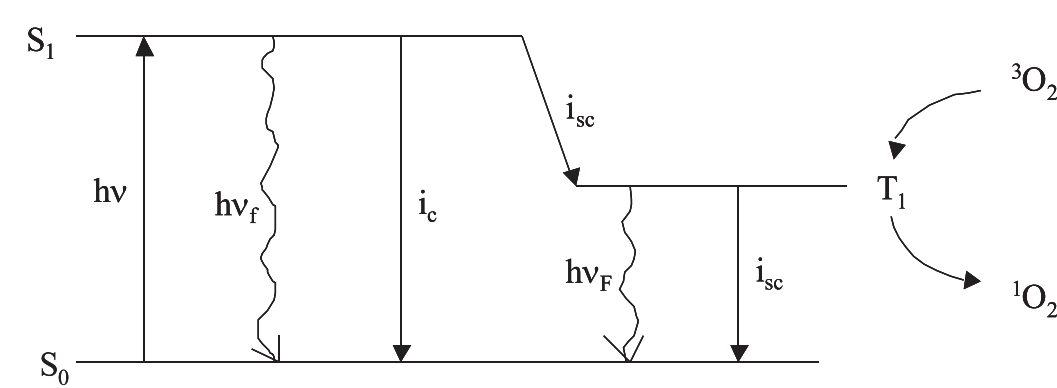
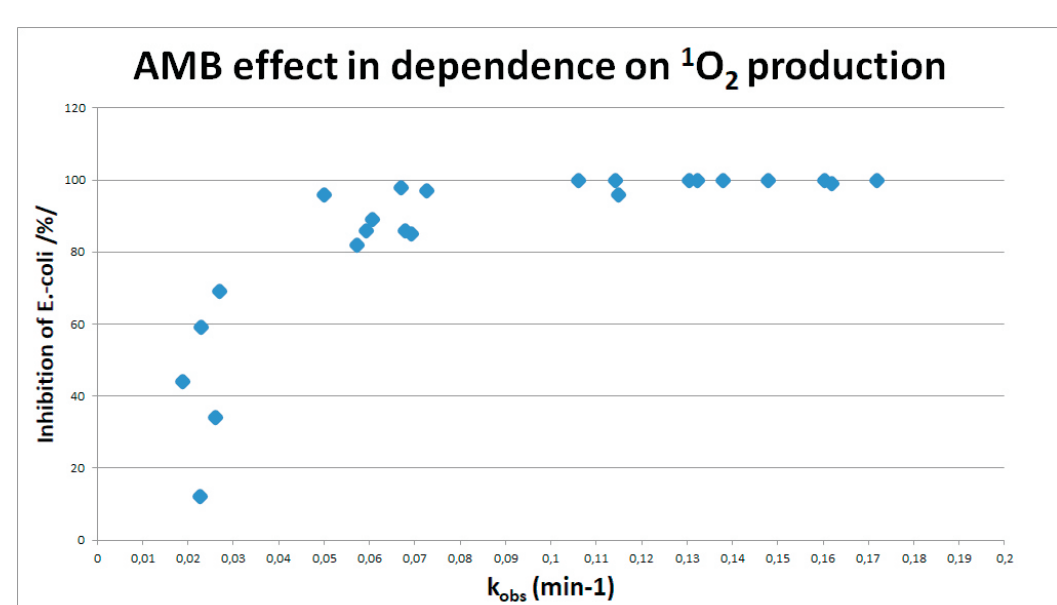


Functional shades for durable freshness, anti-odour & wearing comfort

Effect based on photocatalytic singlet oxygen production

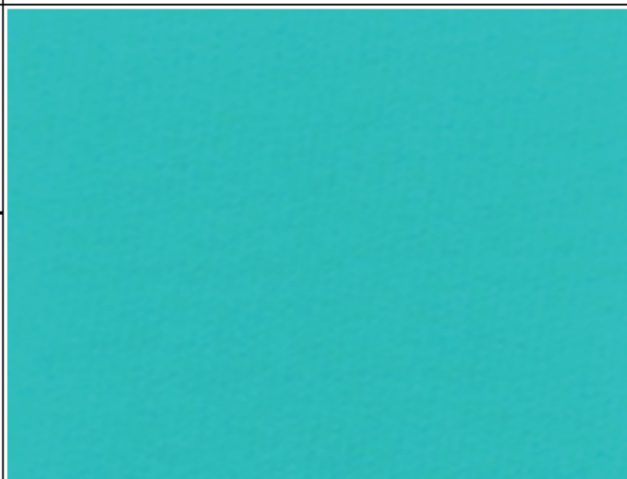


Combined colourations for different shades



Cotton & Co/PES functional dyeing

- Stable in min. 50 x washing at 60°C + CHT Disinfection
- Apparel / Bedlinen
- Compatible with washpermanent FR, DWOR and top finishing systems
- Suitable for health care sector
- Tested in National Public Health Institute Prague

100% Cotton shirting - Colourfastness			Singlet oxygen production $k_{Obs} \cdot 10^{-2} \text{ [min}^{-1}\text{] / [J}^{-1}\text{]}$	Shade
water	EN ISO 105-E01	4/4/4	0,1128	
washing 60°C c15	EN ISO 105-C06	3-4/4/4-5		
persp. alkaline	EN ISO 105-E04	4/4/4		
persp. acid	EN ISO 105-E04	4/4-5/4-5	Antimicrobial effect	
rubbing dry	EN ISO 105-X12	4		
rubbing wet	EN ISO 105-X12	4		
light Q-SUN	EN ISO 105 B02	4K	E.-coli inhibition: 99,8%	
act. chlorine	EN ISO 105-E03	3		

Colourfastnesses and singlet oxygen production



Clothing for health-care staff, bedding, face masks,...

Washpermanent FR + AgNPs based antimicrobial Cotton and Co/PES

TEXAFLAM DFR + *in situ* reduction of nanoAg on organic P:

FR standards:

PPE: EN ISO 15025; EN ISO 14116: 3/25X60

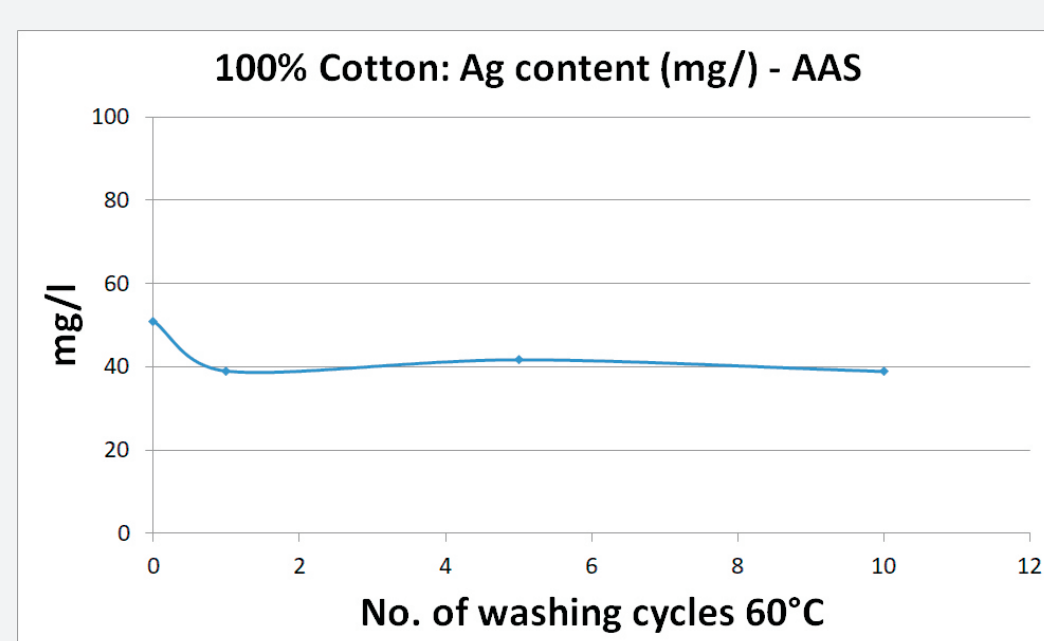
Bedlinen: EN ISO 12952

Home textiles: EN ISO 6940, 6941

Upholstery: BS 5852, EN OSP 1021-1,2

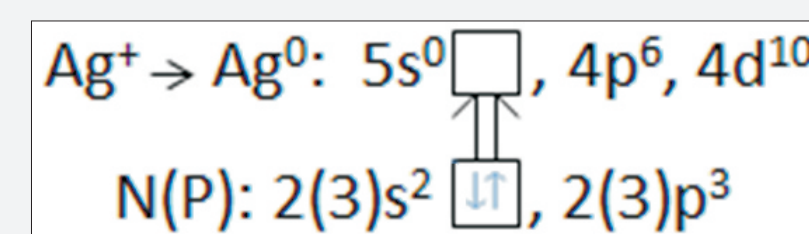
Antimicrobial effect evaluation

Textile substrate	R – Antimicrobial effect EN ISO 20743	
	Staphylococcus aureus	Escherichia coli
100% Cotton	4,82	5,75
50/50 Co/PES	4,35	5,50



AgNPs firmly fixed on fibre

Coordination - covalent bond



PPE, Bedlinen, Interior textiles

- Reliable FR and antimicrobial effect stable in washing 60°C + CHT disinfection (health-care sector)
- Controlled uniform distribution of AgNPs
- AgNPs firmly anchored on P atom of FR finish
 - prevention of AgNPs agglomeration
 - no leakage into environment
 - minimum AgNPs sufficient for AMB no influence on whiteness or shade
- Application by exhaustion process (JET, JIG)
 - finishing bath totally exhausted
- Eco-FR (antimony, halogen, formaldehyde free)