Alkali for solar glass

Does sodium-potassium silicate glass have a mixed alkali effect?
A novel topological analysis using persistent homology found that sodium-potassium silicate glass shows a significant reduction in large cavitiesas a result of the mixed alkali effect. Furthermore,a highly correlated pair arrangement between sodium and potassium ions around non-bridging oxygen atoms was identified.

How are alkali silicate glasses prepared?
Alkali silicate glasses were prepared from mixtures of reagent grade SiO 2,Na 2 CO 3,and K 2 CO 3 powders. The mixtures were melted at 1923 K in air. Each melt was quenched and annealed at the glass transition temperature and then cooled slowly by 1 K/min. The nominal and analyzed compositions of the glasses are listed in Table S1.

What happens if alkali ions enter SIO 2 glass?
It is possible to infer that the introduction of alkali ions into SiO 2 glass causes partial cleavage of the tetrahedron network,and thus,the numbers of non-bridging oxygen (NBO) and silicon with Q n (n < 4) (where n is the number of bridging oxygen atoms in a SiO 4 tetrahedron) 8 increase by breaking the silicon-oxygen bonds.

Do mixed alkali glasses reduce DC conductivity?
It is well known that mixed alkali glasses show a pronounced reductionin dc conductivity in comparison with single alkali glasses 20,41. Indeed,the ?r shown in Fig. S1 exhibits a nonlinear trend as a function of the K 2 O amount and has a minimum value in the Na50K50 glass at all frequencies.

What is the difference between acidic etching and alkaline etched AIT glass?
The morphologyof alkaline and acidic-etched AIT glass is considerably different,resulting in alkaline-etched AIT glass having a slightly lesser haze than those with acidic etching. We have also studied the effect of an additional nanotexture on alkaline-etched AIT glass by a short dip in dilute 2% HF.

What causes mixed alkali effect?
The potassium ions can be trapped in K-O polyhedra due to the increased bridging oxygen coordination; therefore,the correlated pair arrangementis likely the intrinsic origin of the mixed alkali effect. Silicate glasses are one of the oldest materials in history and are commonly used in the modern glass industry.

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