Table 1. Attribution of FT-IR absorption for WFS and WFS after washing

Waste foundry sand (cm^{-1})	NaOH - HCl (cm^{-1})	NaOH - H_2SO_4 - HCl (cm^{-1})	H_2SO_4 - NaOH - HCl (cm^{-1})	Assignment
3376,86	3390,8			O-H stretching vibration of molecular water in the sample[6]
		3228,02	3232,75	Si - O - H bands [7]
2921,11				C–H stretching vibrations [7]
2844,82				C–H stretching vibrations [7]
	2163,79	1985,65		C ≡ C bands
1619,82	1624,05			C - O bands [8]
			1555,18	C = C bands [9]
1441,82	1441,82	1418,86		Si-O-Si and - OH ligand metal complex [10]
1162,01			1146,23	Si–O–Si unti-asymmetric stretching of bridging oxygen atom within tetrahedra [11] - [12]
1023,36	1048,94	1046,61	995,05	
913,78	915,49	938,17		Si-OH bands [14] - [7]
			839,16	Si–O–Si symmetric stretch of bridging oxygen atoms between tetrahedra [13]
797,88		797,55		Si-C stretching vibration[9]
	757,37		721,5	Si–O–Si symmetric stretch of bridging oxygen atoms between tetrahedra [13]
	563,66			the rocking motion of Si–O–Si bridging oxygen which connects the various Qn species of silicates [8]
	535,92	540,22	542,8	
512,07				
464	466,62	455,09		
420,77			419,22	

IV. CONCLUSIONS

Removal of metallic contaminant and other pollutants from waste foundry sand (WFS) has been studied and experimental studies help to conclude reduction of metallic contaminant and other pollutants is much more better in case of H_2SO_4 - NaOH – HCl ambients of triptych washing and maximum reduction of metallic contaminant and other pollutants is 40%. The treated WFS may be reused in the foundry and various engineering applications such as rock wool manufacturing and fiberglass manufacturing.

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