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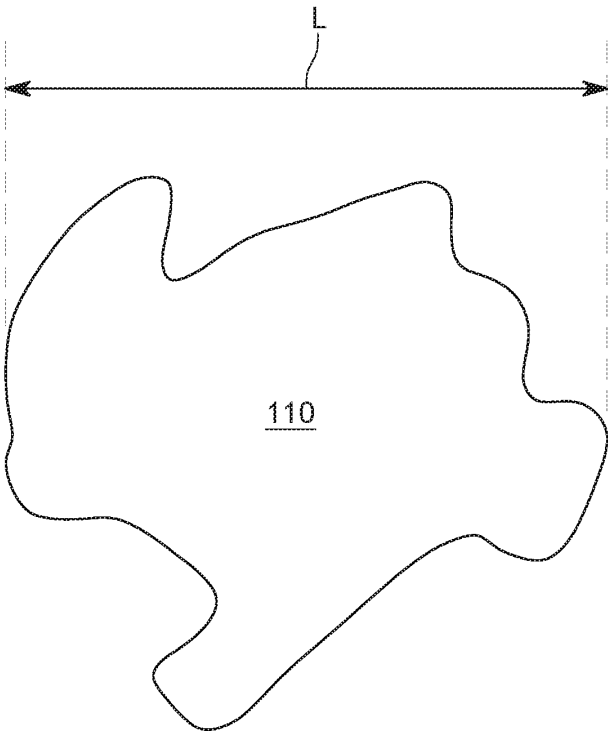


FIG. 1A

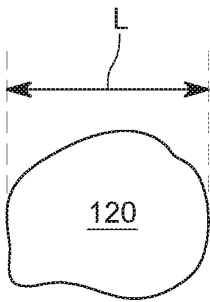


FIG. 1B

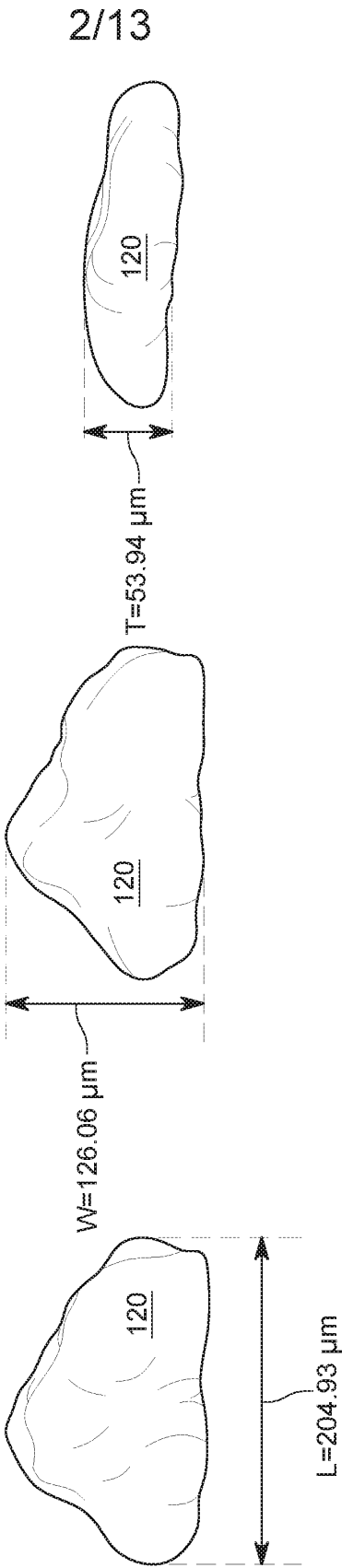
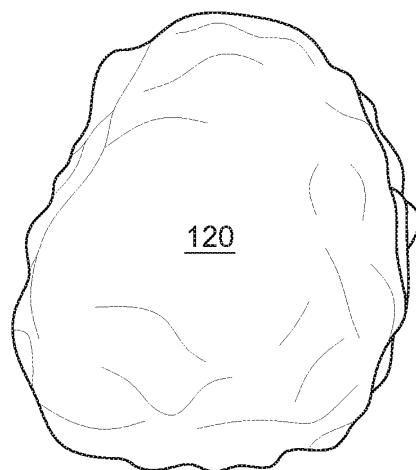


FIG. 2

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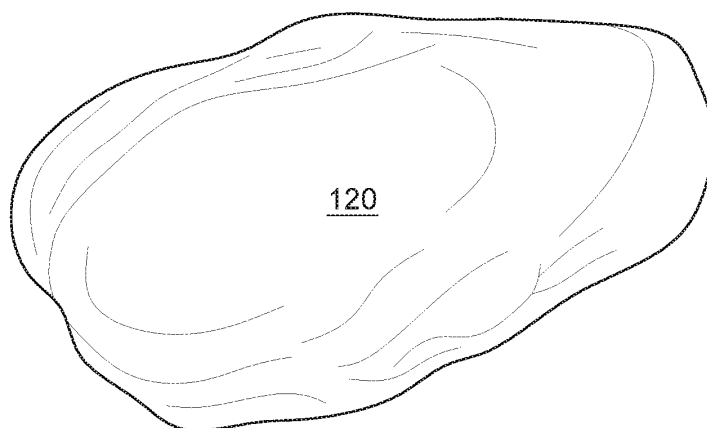


$$EI=0.96$$

$$FI=0.86$$

$$VESD=74.52\ \mu\text{m}$$

FIG. 3A



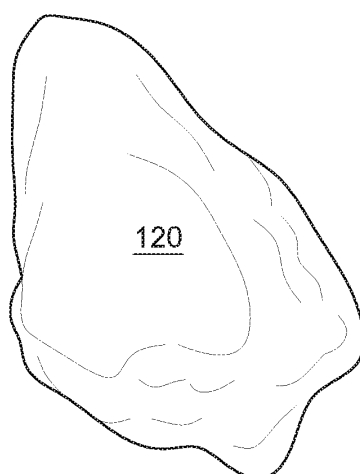
$$EI=0.98$$

$$FI=0.57$$

$$VESD=84.28\ \mu\text{m}$$

FIG. 3B

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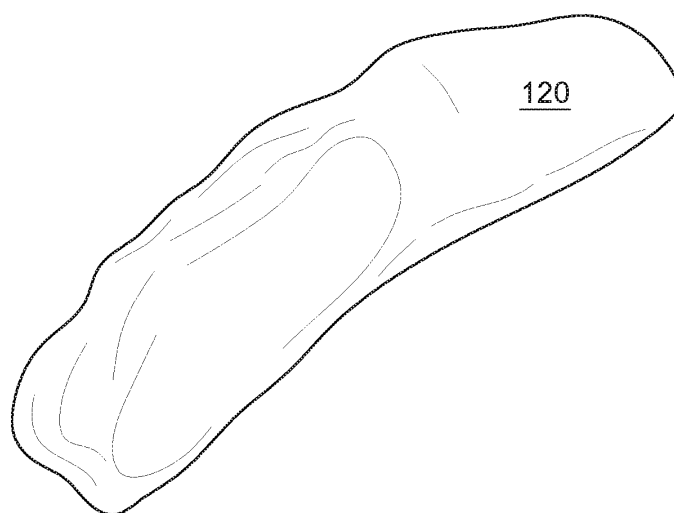


$$EI=0.62$$

$$FI=0.98$$

$$VESD=79.16\ \mu\text{m}$$

FIG. 3C



$$EI=0.66$$

$$FI=0.43$$

$$VESD=122.31\ \mu\text{m}$$

FIG. 3D

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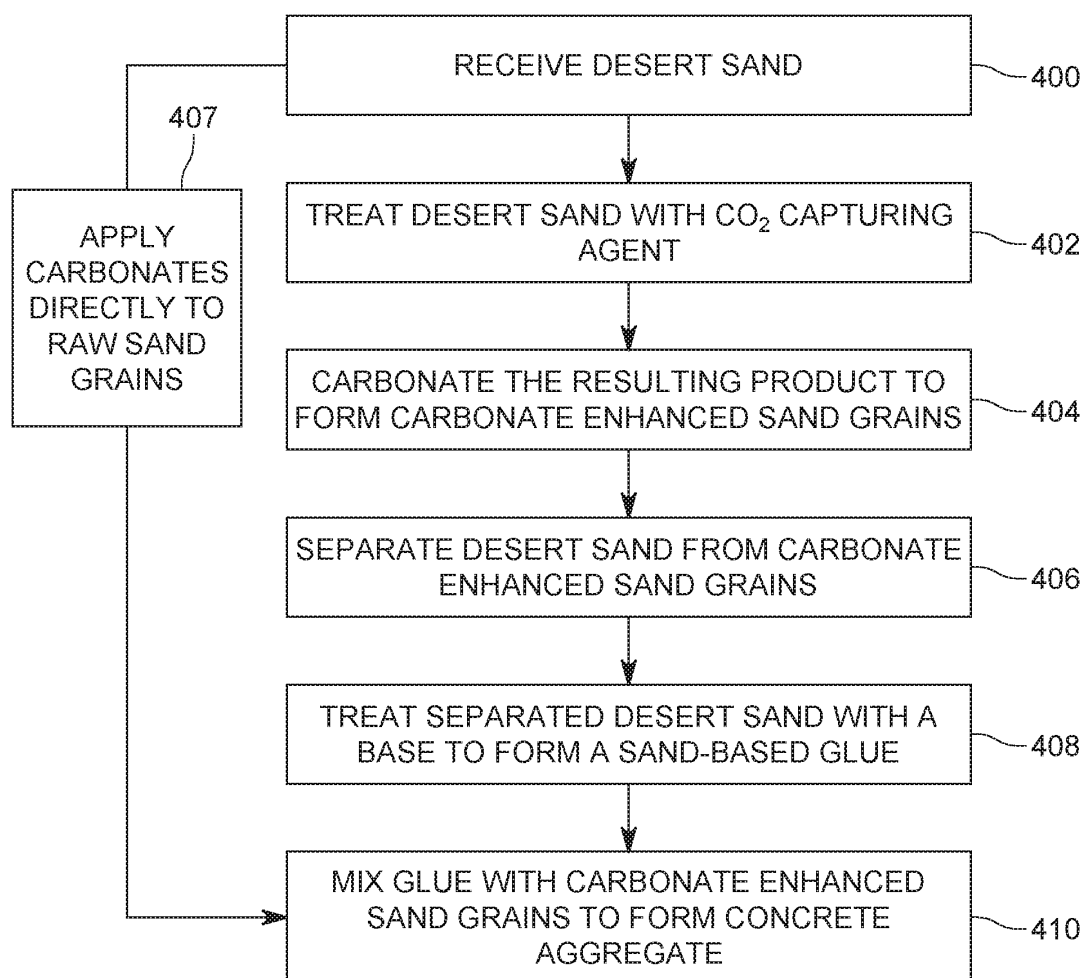


FIG. 4

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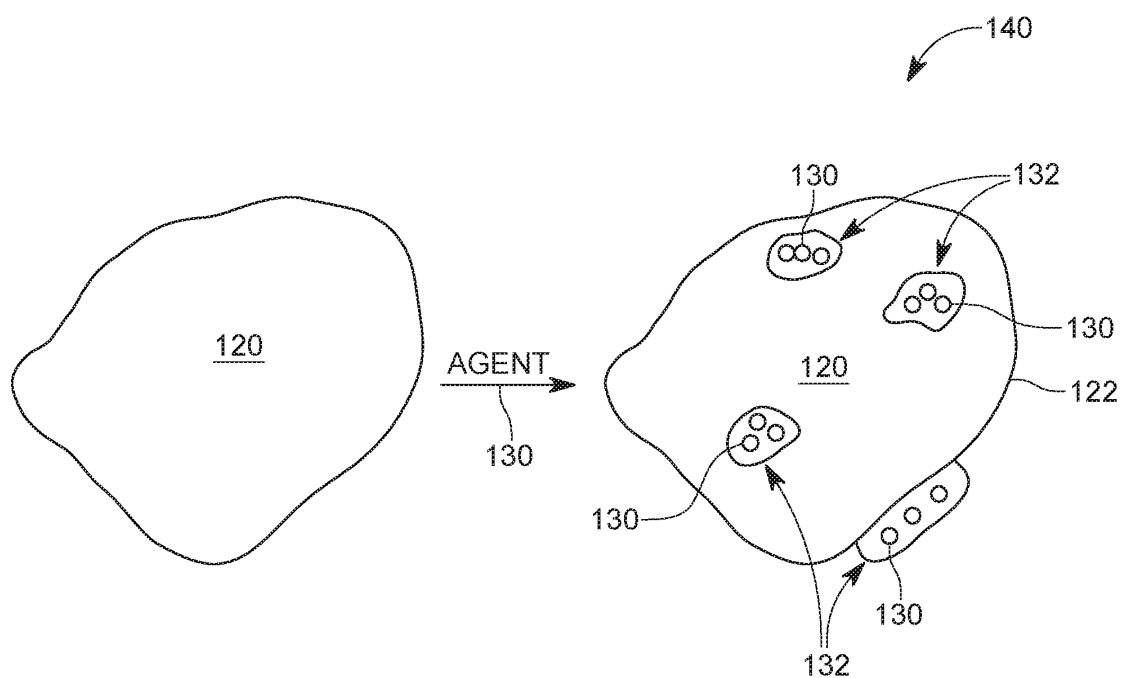


FIG. 5

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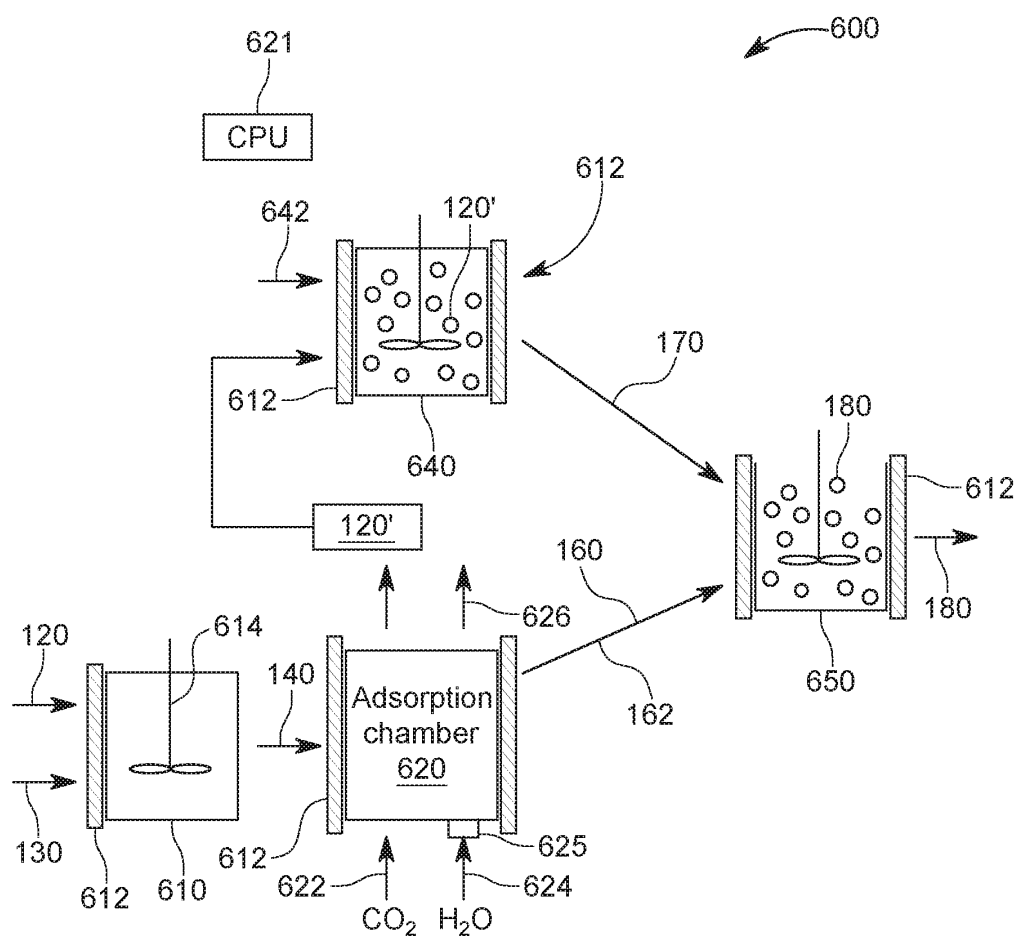


FIG. 6

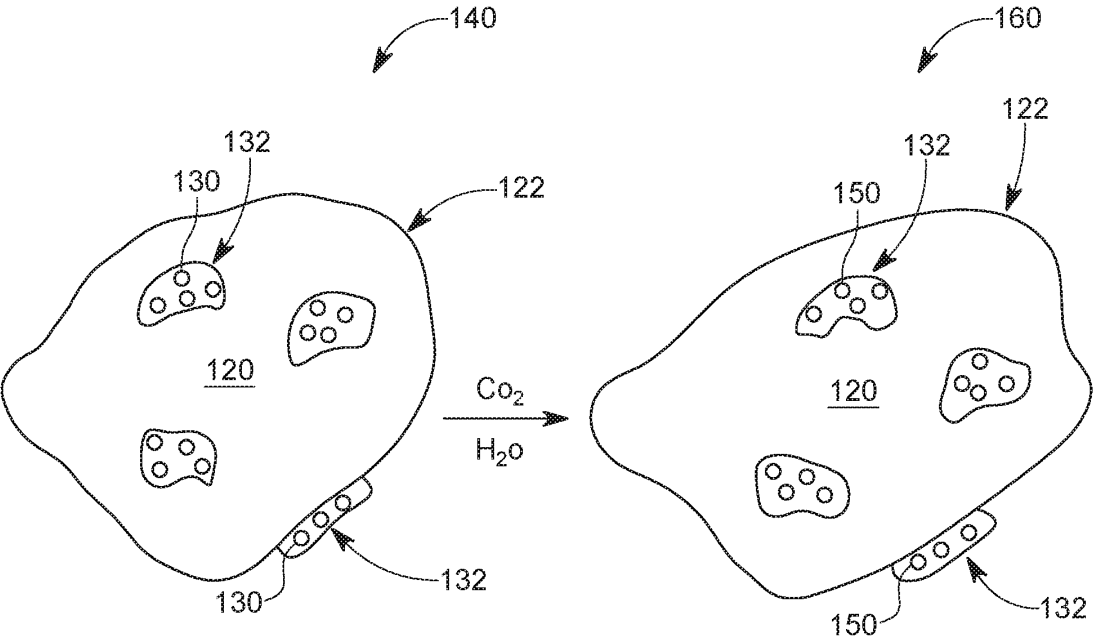


FIG. 7

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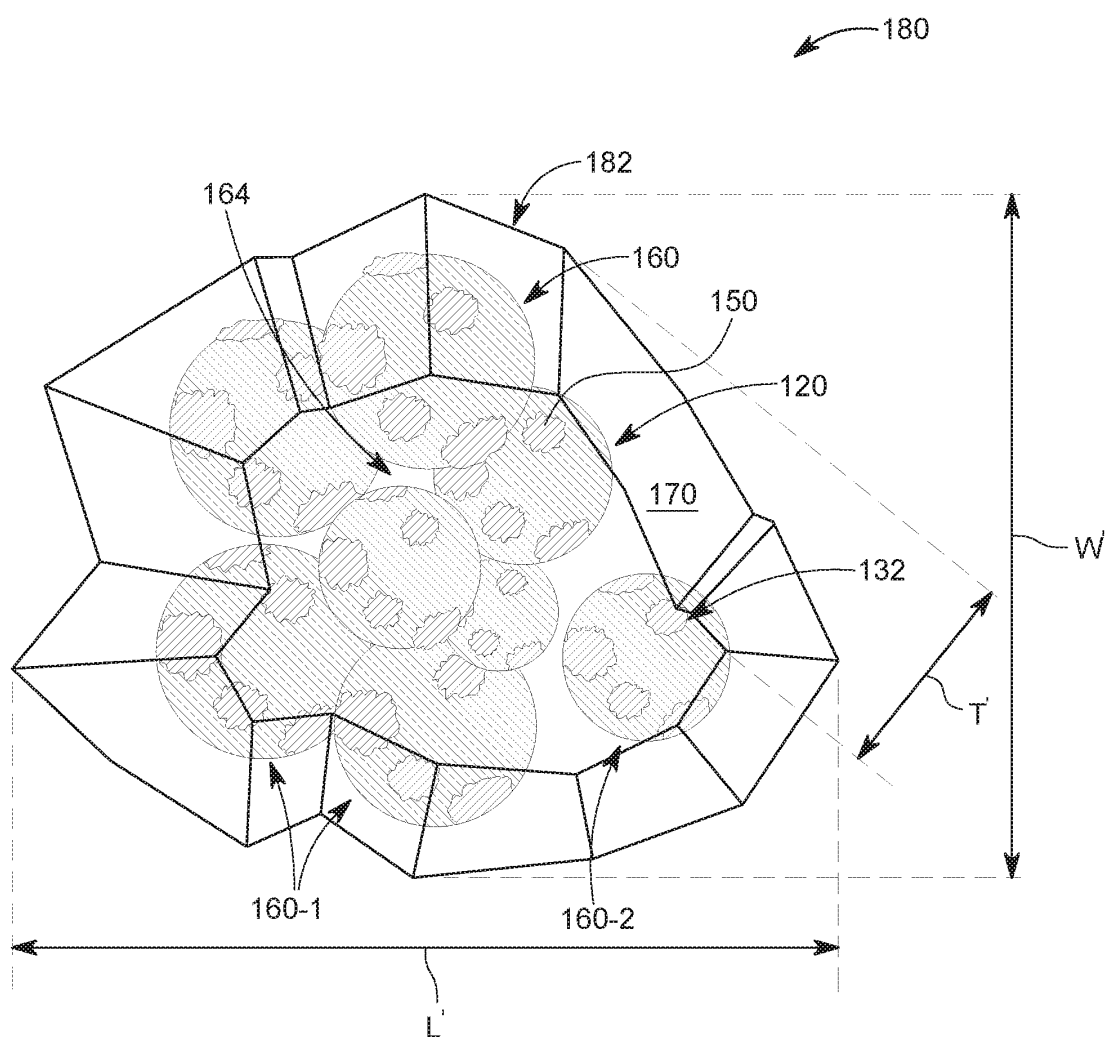


FIG. 8

Exp.	Sand type	Sand/ Ca(OH) ₂ (m/m)	N ₂ (NmL/ min)	CO ₂ (NmL/ min)	H ₂ O	Reaction time (h)	Sample IN (mg)	Sample OUT (mg)	Weight increase (%)	Ca(OH) ₂ reacted *
1	South Beach	5/1	4	4	yes	23	2760	3008	9.0%	90.2%
2	South Beach	5/1	4	4	no	23	2780	2780	0.0%	0.0%
3	Thuwal	5/1	4	4	yes	23	3009	3256	8.2%	83%
4	South Beach	5/1	8	-	yes	23	2766	2876	4.0%	0%
5	South Beach	5/1	4	4	yes	4	2766	3014	9.0%	90.6%
6	Thuwal	5/1	4	4	yes	4	2761	2964	7.4%	74.3%
7	South Beach	3/1	4	4	yes	4	2760	3164	14.6%	98.6%
8	South Beach	7/1	4	4	yes	4	2760	2949	6.8%	92%

FIG. 9

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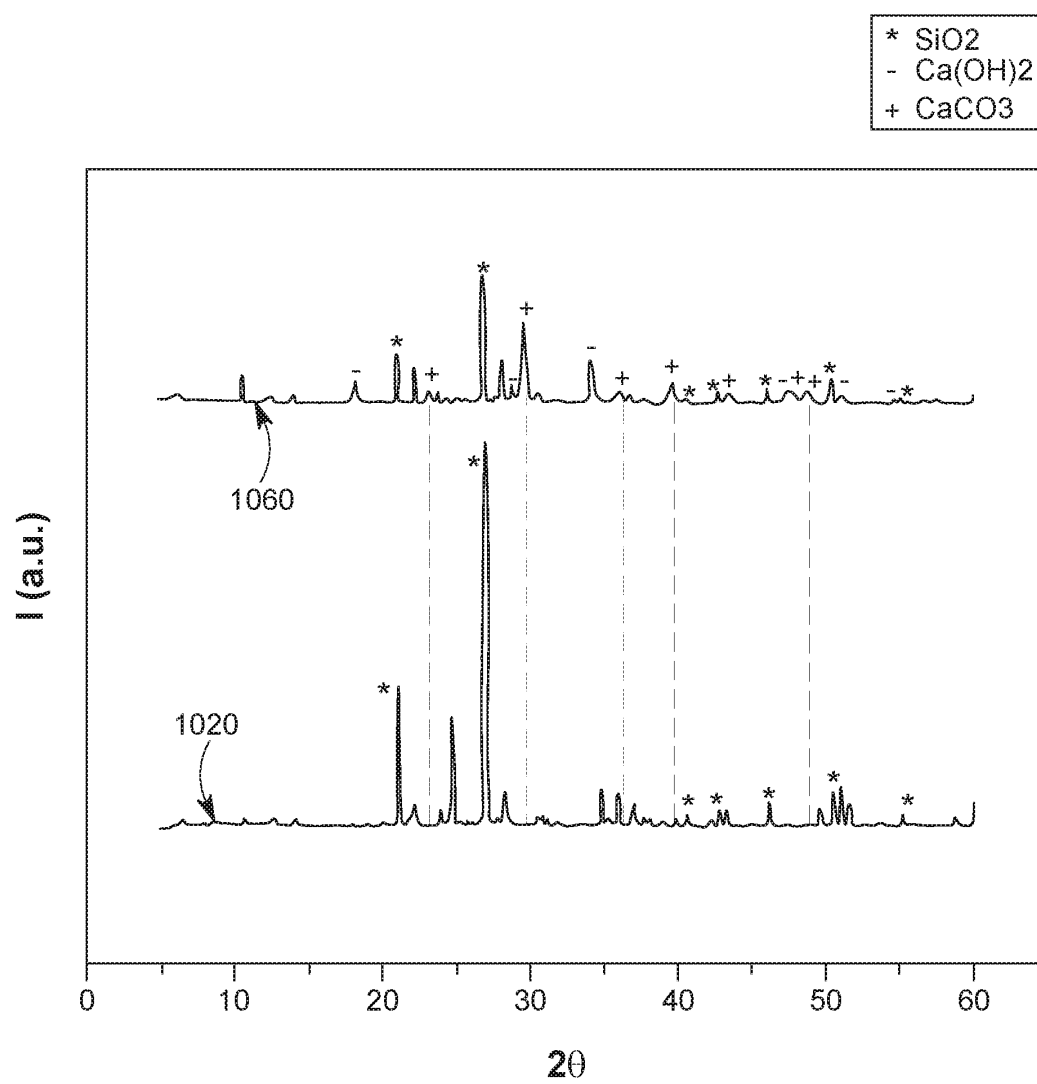


FIG. 10

Exp.	Sand type	Sand/ Ca(OH) ₂ (m/m)	Reaction time (h)	Sample IN (mg)	Sample OUT (mg)	Weight increase (%)	Ca(OH) ₂ reacted*
1	Thuwal	Only Sand	23	3000	2985	-0.5%	0
2	Thuwal	5/1	23	3000	3046	1.5%	15%

FIG. 11

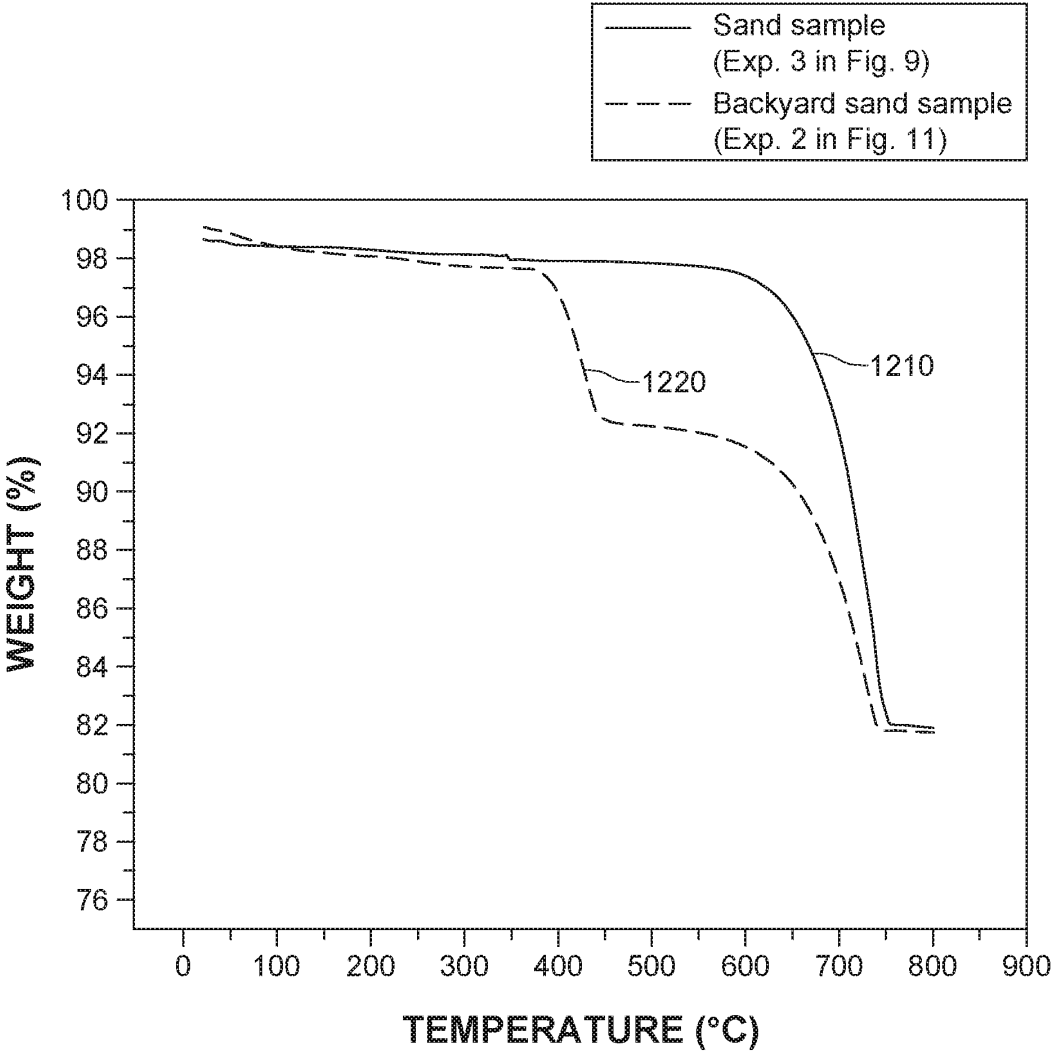


FIG. 12