



Desert Sand & Micro Plastic

DS-utilization & MP-recycling by HKP

economic ☼ ecologic ☼ social responsible

DSMP composite = AdvancedUsefulSand (AUS)

(advanced construction sand via Simoloyer® HKP-technology)

for the benefit of creation



Challenge:

technologically

→ desert sand (DS), particles rounded and inactive, no use for construction (river/beach sand, equiaxial, good for civil engineering).

→ microplastic (MP), large pollution issue, 12 bio.t of plastic waste in landfills and environment estimated for 2050.

economically

→ 95 % of global sand today is not commercially useful, DS not at all. MP pollution-cost (e. g. recovery from oceans) expected to increase far more.

ecologically

→ 40 bio.t/a of sand exploited, more than nature can deliver. Destruction of ecosystems, two dozen islands of Indonesia already vanished.

socially

→ illegal exploitation of sand, sand mafia, island nations losing land for living.

Product/innovation:

enable desert sand by High Kinetic Processing (HKP) in the Simoloyer®. Additionally, recycle microplastic, still in a one-step semi-continuous process (DS+MP→HKP⇒AUS).

Industry:

construction-industry

can stop shipping sand around the world and balance sand cost (deviation today 6€/t - 190€/t).

plastic-industry

turns health-toxic microplastic waste into a utilized valuable product.

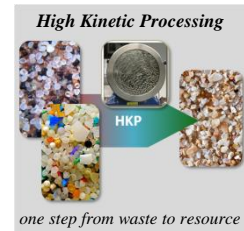
large availability

raw materials desert sand and microplastic virtually endless available at zero/low cost.

CO₂ savings

can represent additional cash earnings/savings.

schedule & volumes	option (a)	option (b)	option (c)
equipment scale Simoloyer®	CM100-HPC	CM400-HPC	CM900-HPC
	est. annual production & CO ₂ -savings [t]		
advanced useful desert sand (AUS)	1.100	4.400	10.000
good for FuturBeton/concrete (contains 32%)	3.450	13.750	31.250
while recycling microplastic (MP, ¼)	275	1.100	2.500
CO ₂ -savings (on FuturBeton only, MP not incl.)	65	270	615
	cost approximates & schedule		
additional product cost per ton of concrete, based on German full-cost calculation, 2012-10	€ 22,00	€ 10,00	€ 7,00
time-scale, set-up/start of the new production line	10 months	16 months	20 months
total cost at partner Zoz [Mio€]	1.0	2.1	3.2
total cost at partner a, b [Mio€]	tbc	tbc	tbc



**utilize Zoz-HKP nanostructure technology
to the benefit of creation**