

Advantages of iGGvital SC

- Activates the microbial soil life
- Regenerates the soil
- Promotes the root penetration
- Contributes to the formation of humus
- Increases the nutrient retention capacity
- Ensures a long-term supply of nutrients
- Has a balanced supply of nutrients
- Can be used throughout the entire year
- Increases the vitality of the plants
- Improves the plant health
- No salt content
- Hygienically safe
- Nitrogen is bound organically

Advantages of iGGsub BCF

- A high degree of organic matter between 87 – 95% in the dry mass.
- C/N ratio of 120 - 200: 1
- iGGsub BCF is a material with a high resistance against bio-degradation. This is particularly important for sandy soils with low humus content.
- It hardly has any microbial degradable carbon sources.
- It maintains its structural stability for a very long time
- There is no nitrogen immobilization, since there are hardly any disposable carbon sources
- It is slightly in the acidic range, with a pH value between 4.5 and 5.8.
- iGGsub BCF has a very low salt content
- It possesses a high capacity for the absorption of fertiliser
- Synergies with organic fertilizers promote the growth of important micro-organisms
- Great number of binding-relevant hydroxyl and carboxyl groups, with a high reversible and chemically effective binding potential for nutrients and trace elements.
- Free of plant components which means no sprouting of weeds
- Free of environmental pollutants and impurities
- Very high homogeneous quality
- The high humic content of iGGsub BCF supports the growths of the roots



Project Report: Presidential Palace Abu Dhabi

Natural Additives for Soil Improvement

Combination of iGGvital SC and iGGsub BCF

Soil Improvement

through the combination of iGGvital SC and iGGsub BCF

Sandy soils, especially in arid areas, are low in nutrients, have a limited nutrient storage capacity and low water retention abilities, as well as a poor soil condition. For successful long-term gardening and landscaping projects on such soils in combination with an artificial irrigation, it is necessary to execute an optimization through the application of suitable soil improvement measures prior to the start of the cultivation. A particularly supportive measure for this is the introduction of biomass (microbial and plant-based) and bio charcoal fibres.

iGGvital SC is an organic slow-release fertilizer with a soil-enhancing effect. It consists of dried and granulated biomass of micro-organisms which live within the soil, for example, the soil fungus *Penicillium Chrysogenum*. After the application & re-watering, iGGvital SC will act as a slow-releasing source of nutrients. Due to the biological nature (dead biomass of soil fungi and other micro-organisms which live in the soil), iGGvital SC has a balanced nutrient composition and



iGGsub BCF is a bio charcoal fibre. The colour is dark brown and it is an additive for the production of plant and tree substrates. Its chemical properties can be classified similar to that of peat, with a low disposable nutrient content. The pH value is slightly in the acidic range. The percentage of organic matter is about 87 – 95 % in the dry mass. The C/N ratio, which lies between 120 - 200:1, is relatively high, but there is no N immobilization, as C sources are hardly available on a microbial level. iGGsub BCF is completely free of plant components (no weeds) and it does not contain any foreign matter.

Application Rates: Presidential Palace Abu Dhabi

- iGGvital SC:** 200 g/m² or up to 1 % volume of soil mix depending on the plants
- iGGsub BCF:** 2,5 % - 10 % volume of soil mix depending on the plants
- Plants:** Exotic Plants, Date Palms, Trees, Shrubs, Hedges, Groundcovers, Lawn,
- Client:** Presidential Palace, Government of Abu Dhabi
- Landscape Architect:** Intelligent Consult LLC (ICON), Abu Dhabi
- Construction Company:** Citiscap LLC, Abu Dhabi
- Construction Time:** 2012 - 2015



iGGvital SC nutrient content

Organic substance	80 %
Total nitrogen	8 % N
Total phosphorus	4 % P ₂ O ₅
Potassium oxide	2 % K ₂ O
Magnesium oxide	1 % MgO
pH value	6.5

is perfectly adapted to the microbial degradation processes within the soil. iGGvital SC also inherently contains an high degree of important trace elements and vitamins.



Examples of improved root growth through the application of iGGvital SC: Hong Kong Airport, reclamation of coal mining in Germany, greening of volcanic ash in Japan, reclamation of coal mining sector in Poland. From left to right.

Common effects of both products

Micro-organisms and extremely small soil animals are of the utmost importance for the humus formation. After the application of iGGvital SC, the increase of the indigenous micro-organisms which exist in the soil will be promoted systematically. They will multiply rapidly and start to degrade or transform the high quality organic materials (biomass/iGGvital SC and carbon-fibre/iGGsub BCF). This will create a rich soil flora and fauna, which will contribute to the formation of a favourable soil structure and thereby provide the conditions which are necessary to support a broad range of processes within the soil. An intensive activity within the soil will provide a biologically stable soil body, in which elements such as iGGsub BCF are combined with sand particles and living micro-organisms to create complex humus structures. These measures will enhance the air, water and nutrient

balance within the sandy soil.

The rich soil flora and fauna which was formed through the iGGvital SC application, will create an active and animate soil structure. A biologically active soil will provide better conditions for an improved root growth. After the iGGvital SC fertilization, it will be possible to observe an increased root growth and an enhanced development of available mycorrhizae. This is due to the slow release of nutrients from the biomass, which will also cause the plant to increase the growth rate of its root mass. An intensive root growth will significantly increase the vitality of the plants. Vital and healthy plants are more resilient against diseases and possibly harmful pathogens.



The organically-bound nitrogen in iGGvital SC is released slowly and continuously by the micro-organisms. This will ensure that the fertilized plants will permanently receive nitrogen without any significant fluctuation (red curve) and lead to a uniform plant growth. An intermittent release of N as with water soluble mineral fertilizers (blue curve) will not occur.

Graph on the right:

Release of nitrate from different types of fertilizer on a sandy soil, where a new seeding with simultaneous fertilization was performed. The utilized amount of N was equal in both fertilizers with 20 g N per m².

Growth of a turf and the release of nitrate from the organic fertilizer iGGvital SC

