

**Quality Parameters for Quality Assurance Substrates**  
**for Roof-Gardens for Extensive Greening in a multi-layer (RAL-GZ 250/6-2)**



Parameter	Range for values
<b>1 Permissible constituents</b>	Organic, mineral and synthetic substances. If there is an RAL quality assurance system for the organic starting substances, quality-assured or equivalent products are to be used. The decision rests with the technical committee substrates for roof-gardens.
<b>2 Declaration</b>	
2.1 Constituents	Declaration of constituents > 5Vol. % in descending order. Recycling materials must be considered
<b>3 Physical properties</b>	
3.1 Granulometric distribution [mass-%]	The granulation curve must lie in the set granular distribution range
3.1.1 proportion of clay and silt ( $d \leq 0,063$ mm)	$\leq 15$
3.1.2 proportion of fine / medium gravel ( $d \geq 4$ mm)	$\leq 50$
3.2 Apparent density (volume weight) [g/cm <sup>3</sup> ]	
3.2.1 dry	to be analysed
3.2.2 at maximum water capacity (Wk max.)	to be analysed
3.3 Water and air management	
3.3.1 Total pore volume [vol.-%]	to be analysed
3.3.2 Maximum water capacity [vol.-%]	$\geq 35 \leq 65$
3.3.3 Air content at WK max [vol.-%]	$\geq 10$
3.3.4 Air content at pF 1,8 [vol.-%]; when 2.3.3 does not come to the estimate	$\geq 20$
3.3.5 Water permeability mod. $k_f$ [mm/min]	0.6 - 70
3.4 Selectable foreign matter [mass-%]	
3.4.1 $d > 6$ mm; e.g. tiles, glass, ceramics, wood remains	$\leq 0.3$
3.4.2 plastics (loss due to burning > 70% by wt)	$\leq 0.1$
3.4.3 sum of surface from plastics (when 3.4.2 does not come to the estimate)	$\leq 10$
<b>4 Chemical properties</b>	
4.1 Organic content [mass-%]	$\leq 65$
4.2 pH value	6.0 - 8.5
4.3 Salt content [g/l]	water extract: $\leq 3.5$ ; gypsum extract $\leq 2.5$ (when necessary)
4.4 Soluble nutrients [mg/l]	
4.4.1 Nitrogen (NO <sub>3</sub> -N + NH <sub>4</sub> -N)	CaCl <sub>2</sub> : $\leq 80$ CAT: $\leq 80$
4.4.2 Phosphorous (P <sub>2</sub> O <sub>5</sub> )	CAL: $\leq 200$ CAT: $\leq 50$
4.4.3 Potassium (K <sub>2</sub> O)	CAL: $\leq 700$ CAT: $\leq 500$
4.4.4 Magnesium (Mg)	CAL: $\leq 200$ CAT: $\leq 200$
<b>5 Biological properties</b>	
5.1 Growth inhibitors	Germination test produces no evidence of growth inhibitors; analysed where needed
5.2 N immobilization	none; analysed where needed
<b>6 Requirements as to environmental relevance</b>	The substrates are to be examined for environmentally relevant substances in the eluate (see table on environmental relevance).
<b>7 Heavy metals</b>	The substrates are to be examined for heavy metals (see table on heavy metals).