

# Schadstoffe in Aushub, Abfällen und Boden

Alle Werte in mg/kg TS

|                             |                                  | Aushub-, Abraum- und Abbruchmaterial |                   |                 |                   |                        |                  |                      | Humus/Boden nach VBBo          |                               |                               |                                           |                             |                   |                  | Referenz<br>Erdkruste<br>(Chemie der Elemente) |
|-----------------------------|----------------------------------|--------------------------------------|-------------------|-----------------|-------------------|------------------------|------------------|----------------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------------------|-----------------------------|-------------------|------------------|------------------------------------------------|
|                             |                                  | VVEA                                 |                   |                 |                   |                        |                  |                      | VBBo<br>Richtw.                | VBBo<br>Prüfwerte             |                               | VBBo<br>Sanierungswert                    |                             | Wegl.<br>Richtw.  | Wegl.<br>Prüfw.  |                                                |
| Typ A / «unverschmutzt»     | Typ A / «schwach verschmutzt»    | Deponietyp B                         | Deponietyp C      | Deponietyp D    | Deponietyp E      | Zementwerk Rohmaterial | Richtwert        | Prüfwert Pflanzenbau | Prüfwert direkte Bodenaufnahme | Sanierungswert Familiengärten | Sanierungswert Landwirtschaft | Wegl. Richtw. Bodenaushub Richt- & U-Wert | Wegl. Bodenaushub Prüfswert |                   |                  |                                                |
| <b>Allgemeine Parameter</b> |                                  |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             |                   |                  |                                                |
| Glühverlust (in Gew.-%)     | GV                               | 1                                    | 5                 | 5               |                   |                        |                  |                      |                                |                               |                               |                                           |                             |                   |                  |                                                |
| Organischer Kohlenstoff     | Corg                             |                                      | 10 000            | 20 000          | 20 000            | 20 000                 | 50 000           |                      |                                |                               |                               |                                           |                             |                   |                  |                                                |
| Lösliche Salze              | LS                               |                                      |                   | 5 000           | 30 000            |                        | 50 000           |                      |                                |                               |                               |                                           |                             |                   |                  |                                                |
| <b>Anorganika</b>           |                                  |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             |                   |                  |                                                |
| Antimon                     | Sb                               | 3                                    | 15                | 30              |                   | 50                     | 50               | 30                   |                                |                               |                               |                                           |                             | 0.2               |                  |                                                |
| Arsen                       | As                               | 15                                   | 15                | 30              |                   | 50                     | 50               | 30                   |                                |                               |                               |                                           |                             | 1.8               |                  |                                                |
| Barium                      | Ba                               |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             | 390               |                  |                                                |
| Beryllium                   | Be                               |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             | 2                 |                  |                                                |
| Blei                        | Pb                               | 50                                   | 250               | 500             |                   | 2000                   | 2000             | 500                  | 50                             | 200                           | 300                           | 1000                                      | 2000                        | 50                | 200              | 13                                             |
| Cadmium                     | Cd                               | 1                                    | 5                 | 10              |                   | 10                     | 10               | 5                    | 0.8                            | 2                             | 10                            | 20                                        | 30                          | 0.8               | 2                | 0.16                                           |
| Chrom gesamt                | Cr                               | 50                                   | 250               | 500             |                   | 1000                   | 1000             | 500                  | 50                             |                               |                               |                                           |                             | 50                | 200              | 122                                            |
| Chrom-VI (Eluierbarkeit)    | Cr-VI                            | 0.05                                 | 0.05              | 0.1             |                   | 0.5                    | 0.5              |                      |                                |                               |                               |                                           |                             |                   |                  |                                                |
| Cyanid gesamt               | CN                               | 0.5                                  |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             |                   |                  |                                                |
| Fluor                       | F                                |                                      |                   |                 |                   |                        |                  |                      | 700                            |                               |                               |                                           |                             |                   |                  |                                                |
| Kobalt                      | Co                               |                                      |                   |                 |                   |                        |                  | 250                  |                                |                               |                               |                                           |                             |                   |                  | 29                                             |
| Kupfer                      | Cu                               | 40                                   | 250               | 500             |                   | 5000                   | 5000             | 500                  | 40                             | 150                           |                               | 1000                                      | 1000                        | 40                | 150              | 68                                             |
| Molybdän                    | Mo                               |                                      |                   |                 |                   |                        |                  |                      | 5                              |                               |                               |                                           |                             |                   |                  | 1.2                                            |
| Nickel                      | Ni                               | 50                                   | 250               | 500             |                   | 1000                   | 1000             | 500                  | 50                             |                               |                               |                                           |                             | 50                | 100              | 99                                             |
| Quecksilber                 | Hg                               | 0.5                                  | 1                 | 2               | 5                 | 5                      | 5                | 1                    | 0.5                            |                               |                               |                                           |                             | 0.5               | 1                | 0.08                                           |
| Selen                       | Se                               |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             |                   |                  | 0.05                                           |
| Thallium                    | Tl                               |                                      |                   |                 |                   |                        |                  | 3                    |                                |                               |                               |                                           |                             |                   |                  | 0.7                                            |
| Vanadium                    | V                                |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             |                   |                  | 136                                            |
| Zink                        | Zn                               | 150                                  | 500               | 1000            |                   | 5000                   | 5000             | 2000                 | 150                            |                               |                               | 2000                                      | 2000                        | 150               | 300              | 76                                             |
| Zinn                        | Sn                               |                                      |                   |                 |                   |                        |                  | 100                  |                                |                               |                               |                                           |                             |                   |                  | 2.1                                            |
| <b>Organika</b>             |                                  |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             |                   |                  |                                                |
| Chlorierte Lösungsmittel    | CLM                              | 0.1                                  | 0.5               | 1               | 1                 | 1                      | 5                | 10                   |                                |                               |                               |                                           |                             | 0.1               |                  |                                                |
| Polychlorierte Biphenyle    | PCB                              | 0.1 <sup>1</sup>                     | 0.5 <sup>1</sup>  | 1 <sup>1</sup>  | 1 <sup>1</sup>    | 1 <sup>1</sup>         | 10 <sup>1</sup>  | 10 <sup>1</sup>      |                                | 0.2 <sup>2</sup>              | 0.1 <sup>2</sup>              | 1 <sup>2</sup>                            | 3 <sup>2</sup>              | 0.02 <sup>2</sup> | 0.1 <sup>2</sup> |                                                |
| Kohlenwasserstoffe flüchtig | C <sub>5</sub> -C <sub>10</sub>  | 1                                    | 5                 | 10              | 10                | 10                     | 100              | 100                  |                                |                               |                               |                                           |                             | 1                 |                  |                                                |
| Kohlenwasserstoff-Index     | C <sub>10</sub> -C <sub>40</sub> | 50                                   | 250               | 500             | 500               | 500                    | 5000             | 5000                 |                                |                               |                               |                                           |                             | 50                |                  |                                                |
| Monocyclische aromat. KW    | BTEX                             | 1                                    | 5                 | 10              | 10                | 10                     | 100              | 10                   |                                |                               |                               |                                           |                             | 1                 |                  |                                                |
| Benzol                      | Ben                              | 0.1                                  | 0.5               | 1               | 1                 | 1                      | 1                | 1                    |                                |                               |                               |                                           |                             | 0.1               |                  |                                                |
| Polycyclische aromat. KW    | PAK                              | 3 <sup>3</sup>                       | 12.5 <sup>3</sup> | 25 <sup>3</sup> | 25 <sup>3</sup>   | 25 <sup>3</sup>        | 250 <sup>3</sup> | 250 <sup>3</sup>     | 1 <sup>3</sup>                 | 20 <sup>3</sup>               | 10 <sup>3</sup>               | 100 <sup>3</sup>                          |                             | 1 <sup>3</sup>    | 10 <sup>3</sup>  |                                                |
| Benzo(a)pyren               | BaP                              | 0.3                                  | 1.5               | 3               | 3                 | 3                      | 10               | 3                    | 0.2                            | 2                             | 1                             | 10                                        |                             | 0.2               | 1                |                                                |
| Dioxine & Furane            | PCDD/F                           |                                      |                   |                 | 1000 <sup>4</sup> | 1000 <sup>4</sup>      |                  |                      | 5 <sup>4</sup>                 | 20 <sup>4</sup>               | 20 <sup>4</sup>               | 100 <sup>4</sup>                          | 1000 <sup>4</sup>           | 5 <sup>4</sup>    | 20 <sup>4</sup>  |                                                |
| ∑ DDT-DDD-DDE               | DDT                              |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             | 0.002             | 2                |                                                |
| ∑ Aldrin-Dieldrin-Endrin    | Ald                              |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             | 0.002             | 2                |                                                |
| ∑ HCH                       | HCH                              |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             | 0.001             | 1                |                                                |
| Chlordan                    | Chld                             |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             |                   | 1                |                                                |
| Endosulfan                  | Endsulf                          |                                      |                   |                 |                   |                        |                  |                      |                                |                               |                               |                                           |                             |                   | 1                |                                                |

- 1 Summe (6 PCB-Kongenerne: 28, 52, 101, 138, 153, 180) x 4.3
- 2 Summe (7 PCB-Kongenerne: 28, 52, 101, 118, 138, 153, 180)
- 3 Summe (16 EPA-PAK)
- 4 in ng I-TEQ/kg TS

Referenzwerte