Claims:

1. Warhead (1) comprising a tubular structure with a front region (2), a rear region (3), an outer wall portion (4), an inner wall portion (5) and a central cavity (6), whereby

a) the outer wall portion (4) is provided with
   i) a multitude of pre-shaped first fracture elements (7) having a non-spherical shape; and
   ii) a multitude of non-cohesive pre-shaped second fracture elements (9) having a spheroidal shape, whereby
b) at least a part of the outer wall portion (4) does not contain any fracture elements; and
c) the multitude of the first fracture elements (7) is either in the form of a cohesive structure or embedded in a matrix (10;11);

characterized in that

d) the second fracture elements (9) are embedded in a matrix (8;11); and
e) the warhead (1) does not comprise any outer layer over the second fracture elements (9) and its matrix (8,11).

2. Warhead according to claim 1, characterized in that the warhead (1) comprises a single matrix (11) in which the first fractures elements (7) and the second fracture elements (9) are embedded.

3. Warhead according to one of the claims 1 to 2, characterized in that the first matrix (10) comprises polymer.

4. Warhead according to one of the claims 1 to 3, characterized in that the first matrix (10) comprises reactive metal foam.

5. Warhead according to claim 1, characterized in that the second matrix (8) comprises the following materials: polymer and/or reactive metal foam.

6. Warhead according to claim 2, characterized in that the single matrix (11) comprises the following materials: polymer and/or reactive metal foam.

7. Warhead according to one of claim 4 to 6, characterized in that the reactive metal foam comprises aluminium and/or magnesium as basic material.

8. Warhead according to one of claims 1 to 7, characterized in that the first fracture elements (7) are formed to a cohesive structure by thermal sintering.

9. Warhead according to claim 1, characterized in that the thickness of the cohesive structure of the first fracture elements (7) is variable over the structure, whereby the cohesive structure has a maximal thickness D_{max} and a minimal thickness D_{min}.

10. Warhead according to claim 1, characterized in that the cohesive structure of the first fracture elements (7) has a minimal thickness in the range between 0.7mm and 2.0mm.

11. Warhead according to claim 1, characterized in that the cohesive structure of the first fracture elements (7) is formed as a mesh.

12. Warhead according to one of claim 9 to 11, characterized in that the second fracture elements (9) are provided in the region of the maximal thickness D_{max} of the cohesive structure of the first fracture elements (7) only.

13. Warhead according to one of claims 9 to 11, characterized in that the second fracture elements (9) are provided in the region of the minimal thickness D_{min} of the cohesive structure of the first fracture elements (7) only.

14. Warhead according to one of claims 9 to 11, characterized in that the second fracture elements (9) are provided in the regions of the minimal thickness D_{min} and in the region the maximal thickness D_{max} of the cohesive structure of the first fracture elements (7).

15. Warhead according to one of the claims 1, 3, 4, 6 to 11 or 14, characterized in that the first fracture elements (7) and the second fracture elements (9) are arranged in a single plane of the outer wall portion (4).

16. Warhead according to claim 1, characterized in that the second matrix (8) is provided in the regions of the minimal thickness D_{min} and in the region the maximal thickness D_{max} of the cohesive structure of the first fracture elements (7).

17. Warhead according to one of claims 1 to 16, characterized in that the first fracture elements (7) and the second fracture elements (9) comprise different materials.

18. Warhead according to one of the claims 1 to 17, characterized in that the first fracture elements (7) are shaped at least partly as polyhedrons, and in particular have a cuboid, parallelepipedic or tetrahedral shape.

19. Warhead according to one of the claims 1 to 18, characterized in that the first fracture elements (7) and the second fracture elements (9) comprise a material with a density of at least 4 g/cm^3.

20. Warhead according to one of claims 1 to 19, characterized in that the first fracture elements (7) comprise a metal, metallic alloy or metal carbide, preferably steel, tungsten, tungsten carbide or aluminum.

21. Warhead according to one of claims 1 to 20, characterized in that the second fracture elements (9) comprise: steel, tungsten or molybdenum.

22. Warhead according to one of the claims 1 to 21, characterized in that it is a hollow charge warhead.

23. Warhead according to one of the claims 1 to 22, characterized in that at least a part of the outer wall portion (4) containing the first and second fracture elements (7;9) is tapering towards the front.

24. Warhead according to one of the claims 1 to 23, characterized in that at least a part of the outer wall portion (4) containing the first and second fracture elements (7;9) is tapering towards the rear.

25. Warhead according to claim 23 or 24, characterized in that the tapering is generally conical with a half cone angle φ_1 being greater than 5 degrees.

26. Warhead according to one of claims 23 to 25, characterized in that the tapering is generally conical with a half cone angle φ_1 being smaller than 7 degrees.

27. Warhead according to one of the claims 1 to 26, characterized in that the first fracture elements (7) are arranged in a single layer.

28. Warhead according to one of the claims 1 to 27, characterized in that the second fracture elements (9) are arranged in a single layer.

29. Warhead according to one of the claims 1 to 28, characterized in that a perforator is attached to the front region (2).

30. Warhead according to one of the claims 1 to 29, characterized in that the tubular structure comprises a discontinuity (11) in the area of the outer wall portion containing the first and second fracture elements (7;9), whereby this discontinuity is running radially to the tubular structure.

31. Warhead according to claim 30, characterized in that the outer wall portion (4) containing the first and second fracture elements (7;9) comprises a hollow generally cylindrical portion (12) and a hollow generally conical portion (13).

32. Warhead according to claim 31, characterized in that the generally cylindrical portion (12) is arranged between the generally conical portion (13) and the rear end (3).

33. Warhead according to claim 31, characterized in that the generally conical portion (13) is arranged between the generally cylindrical portion (12) and the rear end (3).

34. Warhead according to one of claims 31 to 33, characterized in that the hollow generally conical portion (13) has a full cone angle of φ_2 in the range of 4 to 30 degree, preferably in the range of 6 to 20 degree.

35. Warhead according to one of claims 30 to 34, characterized in that the discontinuity has a form of a bend, preferably of a sharp bend.

36. Warhead according to claim 35, characterized in that the bend has a minimal bend of 4 degrees.

37. Warhead according to claim 35 or 36, characterized in that the bend has a maximal bend of 15 degrees.

38. Warhead according to one of claims 1 to 37, characterized in that the warhead does not comprise any outer layer over the first fracture elements (7).

39. Warhead according to one of claims 1 to 38, characterized in that the weight ratio of the multitude of the first fracture elements (7) and the multitude of the second fracture elements (9) is in the range from 1:10 to 10:1.