CLAIMS

1. A hardening initiator for a ready mixed shipping rapid hardening concrete, comprising at least one selected from the group consisting of calcium hydroxide, calcium carbonate, a calcium aluminate based compound having a molar ratio of CaO and Al_2O_3 (CaO/Al_2O_3) of 1.2 to 2.4, a calcium silicate based compound, a colloidal silica, a portland cement, a calcium sulfo aluminate cement, and a blast furnace slag, and further comprising gypsum.

2. The hardening initiator for a ready mixed shipping rapid hardening concrete according to claim 1, wherein the hardening initiator comprises the calcium aluminate based compound and the gypsum.

3. The hardening initiator for a ready mixed shipping rapid hardening concrete according to any one of claim 1 or 2, wherein

the hardening initiator comprises the calcium hydroxide and the calcium aluminate based compound, and

has a mass ratio of the calcium hydroxide and the calcium aluminate based compound (calcium hydroxide/calcium aluminate based compound) of 1/99 to 99/1.

4. The hardening initiator for a ready mixed shipping rapid hardening concrete according to any one of claims 1 to 3, further comprising at least one selected from the group consisting of a dextrin and a cellulose derivative.

5. The hardening initiator for a ready mixed shipping rapid hardening concrete according to any one of claims 1 to 4, which is packaged in a water soluble film.

6. A two-component type ready mixed shipping rapid hardening concrete material comprising a material A containing a cement, a rapid hardener, and a retarder, and a material B containing the hardening initiator for a ready mixed shipping rapid hardening concrete according to any one of claims 1 to 5.

7. A ready mixed shipping rapid hardening concrete composition comprising a material A containing a cement, a rapid hardener, and a retarder and a material B containing the hardening initiator for a ready mixed shipping rapid hardening concrete according to any one of claims 1 to 5, which is added thereto and mixed therein.

8. The ready mixed shipping rapid hardening concrete composition according to claim 7, wherein the rapid hardener contains a calcium aluminate based compound and a gypsum compound as major components.

9. The ready mixed shipping rapid hardening concrete composition according to claim 7 or 8, wherein

the rapid hardener contains a $CaO{\cdot}Al_2O_3{\cdot}SiO_2$ based compound and a gypsum compound, and

the $CaO{\cdot}Al_2O_3{\cdot}SiO_2$ based compound has an amorphous degree of 70% or more and contains SiO_2 in a range of 1 to 18% by mass.

10. The ready mixed shipping rapid hardening concrete composition according to any one of claims 7 to 9, wherein the retarder contains an oxycarboxylic acid, or a carbonate salt of an alkali metal other than lithium and an oxycarboxylic acid.

11. The ready mixed shipping rapid hardening concrete composition according to any one of claims 7 to 10, wherein the content of the hardening initiator for a ready mixed shipping rapid hardening concrete is from 0.5 to 7 parts by mass per 100 parts by mass in total of the cement and the rapid hardener.

12. A method for preparing a ready mixed shipping rapid hardening concrete, comprising in this order: kneading at least a cement, a rapid hardener, and a retarder with kneading water in a kneading vessel; and further mixing the hardening initiator for a ready mixed shipping rapid hardening concrete according to any one of claims 1 to 5 therein.

13. The method for preparing a ready mixed shipping rapid hardening concrete according to claim 12, wherein in the kneading step, a base concrete containing at least the cement, the rapid hardener, the retarder, an aggregate, and the kneading water has a volume of 40% or more of an inner capacity of the kneading vessel.

14. The method for preparing a ready mixed shipping rapid hardening concrete according to claim 12 or 13, wherein a kind and a mixed amount of the hardening initiator for a ready mixed shipping rapid hardening concrete are determined to ensure a usable time of 15 minutes or more after mixing the hardening initiator for a ready mixed shipping rapid hardening concrete.

15. The method for preparing a ready mixed shipping rapid hardening concrete according to any one of claims 12 to 14, wherein the retarder is used in an amount of 0.3 to 5 parts by mass per 100 parts by mass in total of the cement and the rapid hardener.