

## Title (en)

FUNCTIONAL FLUID WITH BORATED EPOXIDES, CARBOXYLIC SOLUBILIZERS, ZINC SALTS, AND CALCIUM COMPLEXES

## Publication

**EP 0258400 B1 19930505 (EN)**

## Application

**EP 87901888 A 19870212**

## Priority

US 83102186 A 19860219

## Abstract (en)

[origin: WO8705046A1] A multipurpose functional fluid which is comprised of a major amount of a hydrocarbon oil and a minor amount, sufficient to improve characteristics of the fluid of a novel additive. The additive is comprised of a calcium salt complex, a group II metal dithiophosphate salt, a borated epoxide and a carboxylic solubilizer. The calcium salt is preferably in the form of an overbased calcium sulfonate salt, the antiwear agent is preferably in the form of a zinc dithiophosphate salt, the borated epoxide is preferably the reaction product of boric acid and a 16 carbon 1,2-epoxide and the carboxylic solubilizer is preferably in the form of a reaction product of an acylating agent containing a substituted hydrocarbyl-based substituent containing about 12 to 500 carbon atoms. Other components such as viscosity improvers and anti-foaming agent are generally present in the fluid. The resulting fluid has improved low temperature fluidity and filterability, improved EP/antiwear performance, excellent friction improving properties, antichatter capability as well as being capable of passing hydraulic/transmission tests, power steering and brake capacity tests. These features are maintained simultaneously without harming other desirable performance characteristics of the fluid. The EP/antiwear performance characteristics are maintained concurrently with the anticorrosion characteristics and transmission performance capabilities. The improved water tolerance is maintained concurrently with the improved EP performance characteristics.

## IPC 1-7

**C10M 141/12**; **C10M 163/00**; **C10N 10/04**; **C10N 40/08**

## IPC 8 full level

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## IPC 8 main group level

**C10M** (2006.01)

## CPC (source: EP)

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