



CMT OF CRYSTALS		
Items	Units	Characters
Appearance	---	Yellow color crystals
Manganese	Weight,%	26.70
Melting point		Asymp~77
C,H content	%	~47
	%	H~2.45
Carbonyl infrared analysis	---	Three carbonyl peaks can be seen at 1900cm-1
Solubility	Gasoline	Easily soluble
Compounds	<b>CMT</b>	<b>% 98.0</b>
	Other impurities	% 2.0
CMT OF LIQUID		
Appearance	----	Yellow liquid
Manganese	g/kg	53.00
Density (20 )	g/ml	0.925~0.965
Freezing point		% -25
Flash point		% 32
Solubility	Gasoline	Easily soluble
Compounds	<b>CMT</b>	<b>% 20.0</b>
	Other supplementary liquids	80.0

## Product name: CMT

chemical name: Nkcyclopentadienyl manganese tricarbonyl

Molecular formula:  $C_5H_5Mn(CO)_3$

### 2.Sensibilities towards CMT:

- paraffins>olefins>aromatics
- lower ON fuels>higher ON fuels
- RON>MON(research octane number>motor octane number)
- The explosive resistant efficiency of **CMT** is about twice as tetraethyl lead
- The gasoline ON boosting result of adding 18mg/l(manganese content) **CMT** is almost the same as blending MTBE at 8%~10%(volume) with gasoline



### 3. Its functioning mechanism

Similar to the tetraethyl lead, **CMT** can be decomposed into small particles of active manganese oxides, owing to their facial function, these small particles effectively incorporate with those super oxides already existed in the engine, which reduces the concentration of the super oxides before combustion, meanwhile cuts a part of chain reactions, then delays the automatic igniting time, reduces the burning speed, and strengthens the explosive resistant characters of the gasoline.

### 4. Functions of CMT

#### (1) boost the ON of gasoline

Add one ten-thousandth of **CMT** (volume) to the gasoline, with manganese concentration less than 18mg/l (National Standards), the ON of gasoline can be boosted to 2 to 3 more.

#### (2) Increase engine driving power, decrease its oil consumption

through the evaluation of NEUTCTI by a fleet of automobiles, we drew out the conclusion that: unleaded 90#gasoline with **CMT** additives can increase engine driving power and decrease its oil consumption compared with 90#gasoline without **CMT** additives

#### (3) Better soluble abilities with MTBE and ethanol

**CMT** can be used well together with MTBE and ethanol blending in gasoline, this character provides a convenient way of producing high ON gasoline, so it can not only boost the ON, but also avoid using excessive blending quantities of MTBE which would decrease the engine driving power, then help to meet the National Standards of "less than 2.7% oxides limitations"

### 5. Physical and chemical characters of CMT

**CMT** have two states: solid and liquid

Physical and chemical characters of **CMT** solid