



# Cola®Carb M7C

Emulsifier with Lime Soap Dispersing Properties

**DESCRIPTION** Branched Medium-chain Alkyl Ether Carboxylic Acid

**LISTINGS** US (TSCA), Canada (DSL), EU (REACH), Australia (AIC), Korea (KECI), China (IECSC), New Zealand (NZIoC), Taiwan (TCSI)

**Cola®Carb M7C** is a medium foaming ether carboxylic acid with good emulsification and dispersing properties, used for metalworking fluids, fire resistant hydraulic fluids (HFA-S) and rolling emulsions.

The product is extremely stable against electrolyte and hard water. Cola®Carb M7C shows outstanding lime soap dispersing power, being able to disperse large quantities of calcium oleate or tallate.

### BENEFITS

- Excellent emulsification properties
- Electrolyte and hard water stable (up to 650 ppm)
- Outstanding lime soap dispersing properties
- Medium foaming tendency
- Boron free
- Free of secondary amines
- Broad registration status

### APPLICATIONS

- Metalworking fluids (emulsions, semi-synthetic, synthetic)
- Fire resistant hydraulic fluids (HFA-S)
- Rolling emulsions

### SPECIFICATIONS

Appearance	Clear Liquid
pH (1% Aqueous)	2.1 – 4.0
Acid Value	70.0 – 85.0
% Moisture	10.0 Max.
Color, Gardner '98	1 Max.
% NaCl	1.0 Max.

### PROPERTIES

HLB	12
K Value	25
Surface Tension	35.8 dynes/cm

### Cola®Carb M7C

- Branched medium chain ether carboxylate acid
- High HLB
- Medium foam

### FORMULA GUIDE FOR TESTS

INGREDIENTS	WEIGHT
100 SUS naphthenic oil	20
Medium molecular weight sodium sulfonate	5.0
Tall oil fatty acids	2.5
<b>Cola®Lube 3440*</b>	2.5
Alkoxyated alcohol (HLB=10)	3.0
Alkoxyated alcohol (HLB=7)	4.0
<b>Cola®Carb M7C*</b>	2.0
Fungicide	1.0
Mono isopropanol amine (MIPA)	1.2
Triethanolamine (TEA)	0.7
<b>Cola®Cor 232*</b>	6.0
<b>Cola®Cor 300*</b>	3.8
Deionized water	41.5
<b>Cola®Cor RP*</b>	4.8
Bactericide	2.0

\* Colonial Chemical Product

- Low oil semi-synthetic
- No defoamers added
- In the blend study, ether carboxylates replaced by
  - **Cola®Carb M7C**: candidate
  - REF 1: an industry reference
  - REF 2: a medium-foam EC reference
- Suggested dilution: 5% in tap water (ca. 200 ppm)
- Suitable for cutting, forming, etc.
- Suitable for light- to medium-duty machining process for ferrous materials

## CONCENTRATE STABILITY STUDY (40 DAYS @ 50°C)

TEMPERATURE °C	RESULT
25°C (Ambient temperature)	Stable
4°C (Refrigerator)	Stable
50°C (Oven)	Stable

Stable **up to 40 days** at all temperatures

- No phase separation
- No precipitation
- No creaming

## STABILITY STUDY FOR WORKING FLUIDS (10 DAYS @ 50°C)

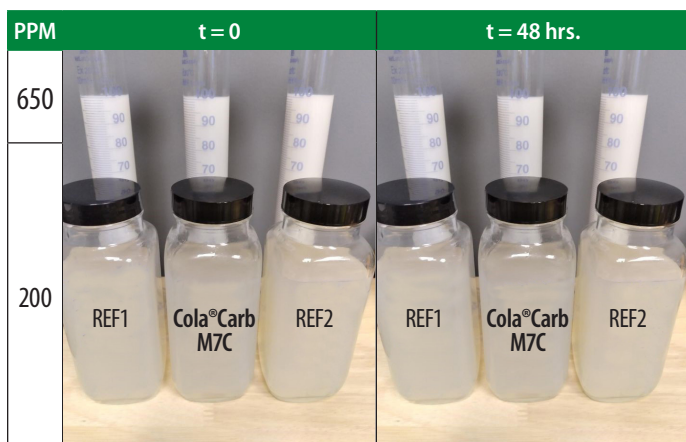
TEMPERATURE °C	RESULT
25°C (Ambient temperature)	Stable
4°C (Refrigerator)	Stable
50°C (Oven)	Stable

Stable **up to 10 days** at all temperatures

- 5 wt % solutions
- Prepared by adding the concentrate to tap water (water hardness: 80 PPM)
- Translucent emulsions
- Equivalent in the milky appearance by visual inspection

*Cola®Carb M7C offers outstanding emulsification power and rivals competing technology*

## HARD WATER TOLERANCE STUDY



- Water hardness; **200 and 650 ppm**
  - In general, fluids turn more milk-like at higher water hardness (650 ppm)
- Visually inspected the milky appearance (opaqueness) at 0 and 48 hrs
  - Less milky results indicate better hard water tolerance
  - Equivalent to industry reference (REF1)

*Cola®Carb M7C demonstrates outstanding tolerance toward hard water*

## FOAM TEST

Water hardness: 200 PPM

Fluids	Time (seconds) to reach < 1 cm	
	@ t <sub>0</sub>	@ t <sub>48h</sub>
REF 1	22	22
<b>Cola®Carb M7C</b>	20	20
REF 2	23	23

Based on an empirical method

- In-between shake foam test and blender foam test
- Closely mimicking the actual application settings of the fluids

*Cola®Carb M7C shows lower (or at least equivalent) foaming tendency than the competitor's product*

## CORROSION TEST



ASTM D4627: Soaked at room temperature during 24 hour study period

- At 3%: Work fluids provides sufficient ferrous protection without staining

Modified ASTM D4627: 5-min soaking to mimic the actual MW process

- At 5%: No rusting by either method at both 80 ppm and 200 PPM
- At 4%:
  - Moderate rusting by modified D4627
  - No rusting by D4627

*Cola®Carb M7C demonstrates equivalent corrosion protection performance to the competing product*

## STORAGE AND HANDLING

Clear, pale yellow liquid at ambient temperature. Could turn hazy, opaque, thick, or frozen @ low temperature. Thaw it slowly at room temperature or 50°C for normal use.

Cola®Carb M7C should be stored in closed containers. Shelf life is 24 months from date of manufacture. Cola®Carb M7C is shipped in closed-head poly 55-gal drums, net weight 450 lbs (204.1 kg). A Safety Data Sheet is available at [www.colonialchem.com](http://www.colonialchem.com).



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*Innovative Specialty Surfactants*