CTCY-EN – 91.1-5 / 09-2017

Acidity tests for refrigerant oils

→ TESTOIL-MAS / TESTOIL-POE / TESTOIL-MP / TESTOIL-3P-CO_2

The oil acidity content is an important parameter to check because it determines the refrigerating installation's good operating condition.

Two internal chemical processes can alter the oil quality and generate the formation of acids and sludge harmful for the installation:

- the formation of free fluorinated and chlorinated acids produced by alteration of halogen refrigerants;
- the formation of fatty acids by hydrolysis of POE-type oils.

These acids then generate metallic salts and oxides (iron or copper) that could block the oil filter or lead to the copper plating of metallic parts in motion. These degradation phenomena are dangerous for the installation, because they lead to seizing of oil pumps and to severe damage due to lubrication defect.

The new oils (mineral, alkylbenzenes, polyvinylether and polyol-esters) have different acidity indices due to the addition of (anti-wear, antioxidant, anticorrosive…) additives by the manufacturer, in order to reduce mechanical wear and extend the compressor's service life.

■ Applications

- **TESTOILs** ensure monitoring of the mineral, alkylbenzene, polyol-ester, polyvinylether… oils acidity in refrigerating and air conditioning installations.
- Intended for professional use.

■ Functional features

- **TESTOILs** are solvent-based flammable chemical solutions, coming from natural products (they do not contain benzene, or xylene, or toluene).
- **TESTOIL-MAS** is compatible with no additive mineral, alkylbenzene and polyvinylether oils
- **TESTOIL-POE** is compatible with additive polyol-ester oils.
- **TESTOIL-3P-CO_2** is compatible with the oils used in CO_2 installations (POE, PAG, PAO...).
- Compounds of biodegradable substances.
- Non-toxic for humans : do not contain carcinogenic, mutagenic, toxic to the reproduction compounds.
- Level of VOC (Volatil Organic Compounds): 98 % - 16.9 grams / product.

■ CARLY advantages

- **TESTOILs** are ready for use products, usable on site.
- The measurement process is simple, quick and efficient.
- **TESTOIL-3P-CO_2** is specially designed for oils used in CO_2 installations (POE, PAG, PAO...).

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■ Directions for use

- **TESTOIL** bottles should be opened only for immediate use.
- Pour an oil sample in the bottle.
- Shake and let it rest for 10 seconds until colour stabilisation.
- Observe the test solution colour:
  - ➔ Purple: test is satisfactory, oil acidity is correct;
  - ➔ Yellow: oil acidity is high, oil should be replaced.

■ Precautions for use

Precautions of use - see the Safety Data Sheet

- Highly flammable liquid and vapour.
- Causes serious eye irritation.
- May cause drowsiness or dizziness.
- Wear eye protection, protective gloves.
- Avoid breathing vapours.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Keep container tightly closed.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Store in a well-ventilated place. Keep cool.
- The test solution colour changes with highly additive oils but this does not mean that they are faulty: it is therefore very important to inquire about the additive contents of the oil used, for a correct interpretation of the result obtained when the acidity test is performed using **TESTOIL**.
- To ensure reliable measurement, shorten the handling time between the oil sampling from the compressor and the opening of the **TESTOIL** bottle.
- Do not swallow.
- The product is solvent-based and should be kept in a cool and dry place.
- Do not expose the product to sun-light.
- Do not use **TESTOIL** in a circuit containing a tracer (the tracer distorts the test's interpretation).

Storage conditions

- Keep the product at temperatures between + 5°C and + 30°C, in a dry and cool place, and protect from sunlight.

Waste treatment

- Used products must be disposed of in accordance with current regulations for hazardous industrial waste.
- Do not dispose into drains or the environment.

■ Technical features

CARLY references	Acid test for oils	Packaging
TESTOIL-MAS	mineral, alkylbenzene and polyvinylether	1 bottle of 30 ml
TESTOIL-POE	polyol-ester	1 bottle of 30 ml
TESTOIL-MP	mineral, alkylbenzene, polyvinylether and polyol-ester	2 bottles of 30 ml
TESTOIL-3P-CO_2	polyol-ester, polyalkyleneglycol, polyalphaolefin	1 bottle of 30 ml

■ Weights and packaging

CARLY references	Unit weight kg	Packaging unit
TESTOIL-MAS	0,07	18
TESTOIL-POE	0,07	18
TESTOIL-MP	0,11	16
TESTOIL-3P-CO_2	0,07	18