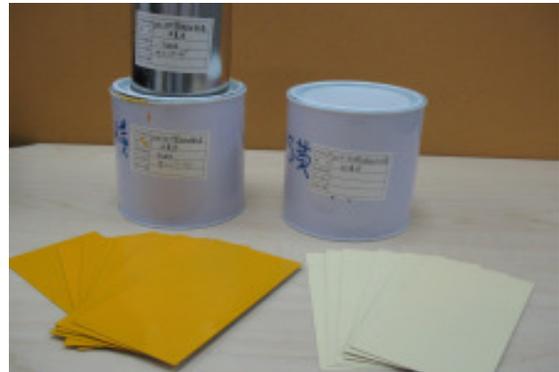


Paint compatibility of gear oils

Why do we use paint for industry gearboxes?

Gearbox manufacturers paint the gearbox both on the outside and inside to offer corrosion protection during storage and transportation. Furthermore, sand particles from the gearbox casting process are bound by the inside paint to prevent possible damage of the gear teeth or bearings.



Performance of various paint types

The paints used for corrosion protection are categorised in two groups, single-component and two-component paints. Single-component paints (e.g. alkyd resin) are cheaper but only last three to five years and they are not compatible with polyglycol oils. Two-component paints (e.g. epoxy paints) are more expensive but last much longer and are compatible with polyglycol oil. They showed, for instance, a useful life of more than 20 years in a wind turbine. Additionally, two-component paints offer high resistance to chemicals and water.

	Performance					
	Resistance to weather	Resistance to water	Resistance to chemicals	Resistance to high temperatures	Resistance to dust	Lifetime
Single-component paint	▲	△	△	△	△	▲
Two component paint	◆	○	◆	▲	○	◆

◆excellent ; ○ very good ; ▲ good ; △ acceptable ; × poor

Paint compatibility of gear oils

Damage caused by the incompatibility of paint and oil

If paint and gear oils are not compatible, the paint will loosen after contact with the gear oil. This will shorten oil change intervals and could clog filters. In the worst case, it could even lead to gear damage caused by clogged oil feeds or blocked rolling elements.



Why choose a two-component paint for industry gearboxes?

If the gear oil is not compatible with the paint, suitable oil should have priority over paint, i.e. it is better to change the inside paint to be compatible with oil rather than changing over to an oil with poorer performance.

The reason is that high performance gear oils such as polyglycol or polyalphaolefin are essential for the protection of machine elements as they can reduce friction and prolong the machine elements' service life.

Normally, two-component paint is preferred for industry gearboxes as it is compatible with most gear oils and also offers much longer service life.

Leading gearbox manufacturers like SEW, Flender Hansen, Moventas, Boston or Baldor use two-component paints for the production of their gear boxes, especially for those intended for application in the cement and wind power industries or power plants.

Paint compatibility test according to DIN EN ISO 2409 – cross-cut test

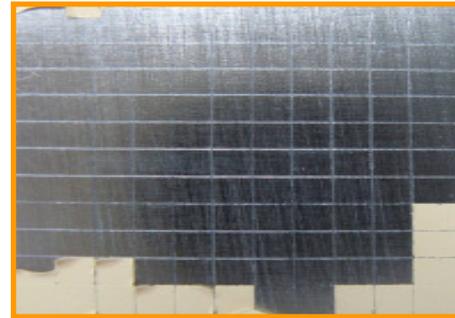
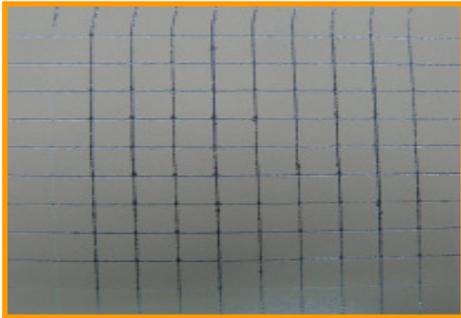
According to DIN EN ISO 2409, paints are compatible with an oil if less than 5 % of the paint on a plate is loosened by the oil, i.e. if their rating is either 0 or 1 on a scale from 0 to 5.

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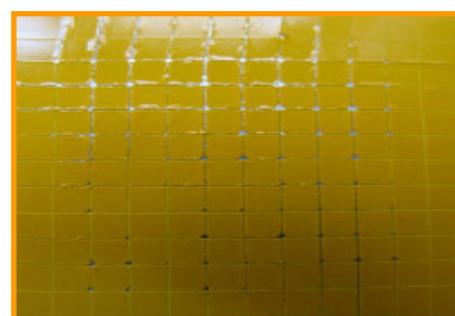
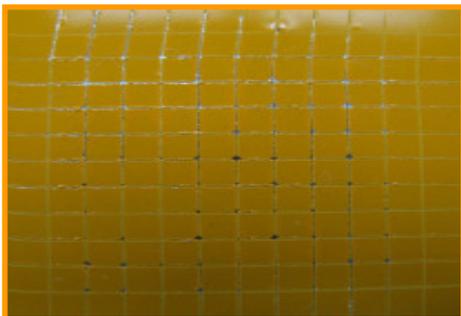
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Paint compatibility of gear oils



Test result for single-component paint: Almost 100 % of the paint has been loosened, Rating 5. The paint is incompatible with the tested gear oil based on polyglycol.



Test result for two-component paint: Less than 5 % of the paint has been loosened, Rating 1. The paint is compatible with the tested gear oil based on polyglycol.

Which Klüber gear oils are compatible with two-component paints?

The following Klüber gear oils have passed the above-mentioned paint test and can be used with two-component paints:

Klüberoil GEM 1 N series

Klübersynth GEM 4 N series

Klübersynth GH 6 series

Klübersynth UH1 6 series

Klüberoil 4 UH1 N series

Klübersynth GEM 2 series