

StaSo Transformer Fluid IKO

Description / Use:

StaSo Transformer Fluid IKO is a high-quality inhibitor concentrate for improving the oxidation behavior of uninhibited transformer and insulating oils for transformers of all power stages.

StaSo Transformer Fluid IKO is added in uninhibited insulating oils in a concentration of 3%. Optimized insulating oils meet the requirements for the inhibitor content of inhibited oils according to IEC 60296-03 of 0.3%.

Important: It is essential that the addition of **StaSo Transformer Fluid IKO** to the transformer oil is carried out by qualified personnel via a degassing plant.

Characteristics / Identification / Qualification:

StaSo Transformer Fluid IKO optimizes the oxidation stability of the transformer oil.

Typical Data:

| | Unit | Test method | Guaranteed data | | Typical data |
|-------------------------------|-------------------|---------------|---------------------------|-------|---------------|
| | | | Min | Max | |
| Appearance | | IEC 60296 | Clear, free from sediment | | complies |
| Density, 20°C | kg/m ³ | ISO 12185 | | | 880 |
| Corrosive sulphur | | DIN 51353 | non corrosive | | non corrosive |
| Corrosive sulphur | | ASTM D 1275 B | non corrosive | | non corrosive |
| Corrosive sulphur | | IEC 62535 | non corrosive | | non corrosive |
| DBPC – Content | wt% | IEC 60666 | 9,8 | 10,2 | 10,0 |
| Dielectric dissipation factor | | IEC 60247 | | 0,005 | 0,001 |
| Flash point, PM | °C | ISO 2719 | 135 | | 145 |

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Calculation help of amount to be added

| | |
|------------------------------|-------------------|
| Transformer oil mass, kg | M_{TR} |
| Current inhibitor content, % | C_{CIC} |
| Wanted inhibitor content, % | C_{WIC} |
| IKO mass needed, kg | M_{IKO} |
| IKO inhibitor content, % | $C_{IKO} (=10\%)$ |
| Total amount blend, kg | M_{TOT} |

Mass balance total:

$$M_{TOT} = M_{TR} + M_{IKO}$$

Mass balance, only additive (DBPC):

$$M_{Tot} \times C_{WIC} = M_{TR} \times C_{CIC} + M_{IKO} \times C_{IKO}$$

$$(M_{TR} + M_{IKO}) \times C_{WIC} = M_{TR} \times C_{CIC} + M_{IKO} \times C_{IKO}$$

$$M_{TR} \times (C_{WIC} - C_{CIC}) = M_{IKO} \times (C_{IKO} - C_{WIC})$$

$$\frac{M_{TR} \times (C_{WIC} - C_{CIC})}{(C_{IKO} - C_{WIC})} = M_{IKO}$$

Example

| | | | |
|------------------------------|--------------|-------------|--|
| Transformer oil mass, kg | 50.000 kg | = M_{TR} | |
| Current inhibitor content, % | 0,2 % | = C_{CIC} | |
| Wanted inhibitor content, % | 0,4 % | = C_{WIC} | $M_{IKO} = \frac{50.000 \text{ kg} \times (0,4 - 0,2)}{(10 - 0,4)} = 1041,67 \text{ kg}$ |
| IKO mass needed, kg | ??? | = M_{IKO} | |
| IKO inhibitor content, % | 10 % | = C_{IKO} | |
| Total amount blend, kg | 50.000 + ?kg | = M_{TOT} | |