

Monsanto

FROM (NAME & LOCATION)

C.B. COLEMAN - Buabon

DATE

5th August, 1968

SUBJECT

PHOSGENE FROM DECOMPOSITION OF
TRANSFORMER ASKAREL

REFERENCE

CRC/EMR

TO

P.G. BENIGNUS - St. Louis

D. Wood - Brussels
J.M.M. Thomson - London
R.H. Munch - St. Louis

A prospective user of transformer askarel has drawn my attention to the book 'Transformer Engineering' by L.P. Blume, A. Boyajian, G. Camilli, T.C. Lennox, S. Minneci, V.M. Montsinger, all of General Electric Company, Pittsfield, Mass. (John Wiley & Sons, Inc., New York, 1951). On page 434 there is a table of the decomposition products of transformer askarel showing that 0.01% of phosgene is produced in an electric arc through air-saturated askarel at 25°C. It was most disturbing to come across this information, particularly in a book published by G.E. personnel, since this is a variance with reports published in France and Germany, in addition to our own publications.

For comparison, I give the complete table from this book together with 2 other sources on the subject:-

Gas	G.E. Book	Clark*	Monsanto 'Black Book'
HCl	97.50%	97.0	97.3
O ₂	0.60	0.25	0.6
Unsaturated hydrocarbons	-	0.50	-
CO ₂	0.28	0	0.3
CO	0.28	0.25	0.3
Phosgene	0.01	-	-
Saturated hydrocarbons	-	0	-
H ₂	-	-	-
Cl ₂	-	0	-
Inert (N ₂)	1.33	2.0	1.5
	100.0	100.0	100.0

* F.M. Clark, 'Nonflammable organic compounds'; Ind. Eng. Chem., Vol. 29 (June 1937) pp. 689-702.

P.F. - Wood
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The following investigators have sought phosgene but failed to find it:

P. Jay, 'Etude de la formation de phosgène par décomposition dans l'arc électrique des hydrocarbures chlorés'; Chimie et Industrie, Vol. 92, No. 5 (November 1964).

Anon, 'Opinion on the behaviour of clophens in thermic and electrical treatment'; Report from Chemisch-Technische Reichsanstalt, Berlin, 21 May 1940, Register No. 176/40C.

Both these investigations used aniline-water saturated with diphenyl urea for detecting the presence of phosgene. I am not an expert in analytical methods and wonder if this method is sufficiently sensitive to detect 0.01% of phosgene among the other decomposition products.* Perhaps another investigation using sensitive physical methods of analysis would be worthwhile, particularly if it could be scrutinized by an impartial observer, from some official organization.

Any background information that you can give us on this topic and this G.E. book and its authors would be very welcome.

See you in September when you visit U.K.

Regards,

Colin

COLIN R. COLEMAN

* I hear that there is a colorimetric method sensitive below 100 ppm.