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The Effect of Temperature and Solvent on Nitrogen Trichloride Additions; Acetylene Hydrocarbons and Nitrogen Trichloride

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Ammonium chloride is a non-conductor (it is but very slightly soluble) but if the H of the ammonium is replaced by a methyl or ethyl radical the conductance increases very much.

In general, the results follow the rule that the conductance is increased by making the two radicals more different in positivity and negativity.

EQUIVALENT CONDUCTANCE OF SOLUTIONS IN LIQUID HYDROGEN SULFIDE

Compound	Mol conc.	Conductance
NH ₄ Cl	Any	Nil
NH ₃ CH ₃ Cl	.0133	21.25 x 10 ⁻³
NH ₂ (CH ₃) ₂ Cl	.0113	641. x 10 ⁻³
NH(C ₂ H ₅) ₂ Cl	.0104	1532. x 10 ⁻³
CH ₃ COOH	.01	541. x 10 ⁻³
CH ₃ COSH	.01	2.05 x 10 ⁻³
CH ₃ COCl	.01	2.964 x 10 ⁻³
CH ₃ CONH ₂	.01	16.8 x 10 ⁻³
CCl ₃ COOH	.01	Nil
CH ₂ NH ₂ COOH	.01	Nil

VANADIUM OXYTRICHLORIDE AS A SOLVENT

F. E. BROWN AND J. E. SNYDER

(*ABSTRACT*)

Vanadium oxytrichloride is a liquid from below -15° to about 125°. This is an excellent range for a solvent. The liquid is light yellow in color and has a density of about 1.8. It is easily hydrolyzed. The solubilities of about 80 substances have been determined. No inorganic compound is more than very sparingly soluble in vanadium oxytrichloride. Elements of the chlorine and sulfur families are soluble. Most organic compounds are readily soluble.

IOWA STATE COLLEGE.

THE EFFECT OF TEMPERATURE AND SOLVENT ON
NITROGEN TRICHLORIDE ADDITIONS; ACETY-
LENE HYDROCARBONS AND NITROGEN
TRICHLORIDE

G. H. COLEMAN, C. N. OWEN, AND J. A. RODRIGUEZ

(*ABSTRACT*)

The yield of the addition product of NCl₃ and 2-butene increases with a decrease in the temperature at which the reaction is carried

out, the best yields being obtained at about -20°C . At temperatures much below this, the reaction is very slow. The yields are better with carbon tetrachloride as the solvent than with the other solvents used.

Acetylene hydrocarbons react with nitrogen trichloride forming nitrogen and ammonium chloride. Only traces of an amine are obtained.

STATE UNIVERSITY OF IOWA.

THE REACTION OF NITROGEN TRICHLORIDE WITH
VARIOUS TYPES OF OLEFINE HYDROCARBONS

G. H. COLEMAN, A. W. CAMPBELL, AND G. M. MULLINS

(*ABSTRACT*)

With styrene nitrogen trichloride forms 1-chloro-2-phenyl-2-dichloroamino-ethane. When dry HCl is passed into a carbon tetrachloride solution of this compound 1-chloro-2-phenyl-2-amino-ethane and free chlorine are formed. Propene gives an analogous addition compound having similar properties. 2-Methyl propene and nitrogen trichloride react very rapidly to form ammonium chloride, nitrogen and chlorinated hydrocarbons. No stable addition product is formed in this reaction.

STATE UNIVERSITY.

DECOMPOSITION OF HYDROGEN BROMIDE BY
SILENT ELECTRIC DISCHARGE

J. J. CANFIELD WITH ANSON HAYES

(*ABSTRACT*)

Very few equilibria of gases under the influence of the silent electric discharges have been determined although a considerable number of experiments are recorded in the literature regarding its effect on certain reactions. In order to obtain more data on the chemical effect of the discharge through gases, so that generalizations of the action might be made, the gaseous equilibrium $2\text{HBr} \rightarrow \text{H}_2 + \text{Br}_2$ was determined. Equilibrium at 33°C and atmospheric pressure, using 10,000 to 15,000 volts, was reached with 33.5% HBr, 33.25% H_2 and 33.25% Br_2 present in the mixture. According to the best heat capacity data available and assuming no appreciable dissociation of Br_2 to 2Br , the above