

209. Hamai, S., Hayashi, S. and Shimanura, K.
(Central Lab., South Manchuria Railway Co., Dairen)
Bull. Chem. Soc. Japan 17, 463-77 (1942)
IX. Fischer-Tropsch synthesis of hydrocarbons with special reference
to factors essential to the particular catalysts.
210. Herington, E. F. G. and Woodward, L. A.
Brennst.-Chem. 20, 319 (1939)
211. Herington, E. F. G. and Woodward, L. A.
(Fuel Res. Sta., Greenwich, England)
Trans. Faraday Soc. 35, 958-967 (1939)
212. Herington, E. F. G. and Woodward, L. A.
(Fuel Res. Sta., Greenwich, England)
Trans. Faraday Soc. 36, 958 (1939)
Experiments on the Fischer-Tropsch synthesis of hydrocarbons from
CO and H₂.
213. Kita, G.
J. of the Fuel Soc. of Japan 16, 60 (1937)
214. Koch, H.
Gluckauf 71, 85 (1935)
215. Pichler, H.
Z. Ver Deut. Ing. 79, 883 (1935)
216. Ries, H. E. Jr., Van Nordstrand, R. A. and Titer, J. W.
(Sinclair Refining Co., East Chicago, Ind.)
Ind. Eng. Chem. 37, 310 (1945)
Surface area of catalysts.
217. Rubinshtein, A. M., Pribytkova, N. A., Kazanskii, B. A. and
Zelinskii, N. D.
(Inst. of Org. Chem., Acad. of Sci., USSR)
Bull. Acad. Sci. U.R.S.S., classe sci. chim. 41-8 (1941)
Catalysts for benzine synthesis from carbon monoxide and hydrogen
which do not require high temperature reduction.
218. Storch, H. H.
(U.S. Bureau of Mines, Pittsburgh, Pa.)
Ind. Eng. Chem. 37, 340-51 (1945)
Catalysis in synthetic liquid fuels processes.
219. Storch, H. H.
(U.S. Bureau of Mines, Pittsburgh, Pa.)
Chem. Eng. Progress 44, No. 6, 469-80 (1948)
Review of the development of processes for the synthesis of liquid
fuels by the hydrogenation of carbon monoxide.
220. Storch, H. H. et al.
U.S. Bureau of Mines Tech. Paper 709 (1948)
Influences on cobalt catalyst operation.

221. Tsutsumi, S.
Sci. Papers Inst. Phys. Chem. Research (Tokyo) 35, 481 (1939)
Catalysts for the synthesis of liquid hydrocarbons from carbon monoxide and hydrogen. III. Catalysts prepared by the roasting method.
222. Tsutsumi, S.
Sci. Papers Inst. Phys. Chem. Research (Tokyo) 36, 47-52 (1939)
Catalysts for the synthesis of liquid hydrocarbons from carbon monoxide and hydrogen.
223. Tsutsumi, S.
J. of the Fuel Soc. (Japan) 16, 55 (1937)
224. Underwood, A. J. V.
Ind. Eng. Chem. 37, No. 4, 340 (1945)
225. Weller, S., Hofer, L. J. E. and Anderson, R. B.
(U.S. Bureau of Mines, Pittsburgh, Pa.)
J. Am. Chem. Soc. 70, 799-801 (1948)
The role of bulk cobalt carbide in Fischer-Tropsch synthesis.
226. British Patent 507,419 (June 9, 1939)
W. H. Groombridge and J. E. Newns
227. British Patent 534,357 (March 5, 1941)
(to International Hydrocarbon Synthesis Co.)
228. Dutch Patent 57,692 (June 15, 1946)
(to International Hydrocarbon Synthesis Co.)
229. French Patent 843,305 (June 30, 1939)
(to Ruhrchemie A.-G.)
230. German Patent 710,963 (August 21, 1941)
W. Braune and H. Schaefer (to Braunkohle-Benzin Akt.-Ges.)
231. German Patent 736,922 (May 20, 1943)
W. Herbert (to Metalgesellschaft A.-G.)
232. German Patent 736,701 (May 20, 1943)
W. Herbert (to Metallgesellschaft A.-G.)
233. Italian Patent 349,478 (March 31, 1937)
(to Ruhrchemie A.-G.)
234. United States Patent 2,215,885 (September 24)
O. Roelen and F. Hainisch (to Hydrocarbon Synthesis Corp.)
235. United States Patent 2,244,573 (June 3)
G. Roberts, Jr. (to the M. W. Kellogg Co.)
236. United States Patent 2,274,639 (March 3)
A. Scheuermann, K. Meisenheimer and A. Kotzschmar
(to Standard Catalytic Co.)

237. United States Patent 2,289,731 (July 18)
O. Roelen, H. Heckel and F. Hanish (to Hydrocarbon Synthesis Corp.)
238. United States Patent 2,338,805 (January 11, 1944)
H. Dreyfus (to Celanese Corp. of America)
239. United States Patent 2,363,739 (November 28, 1944)
K. Meisenheimer and A. Scheuermann (Vested in Alien Property Custodian)
240. United States Patent 2,414,276 (January 14, 1947)
E. E. Sensel and R. A. Beck (to Texas Co.)
241. United States Patent 2,445,795 (July 27, 1948)
A. J. Millendorf (to Texas Co.)
242. United States Patent 2,464,480 (March 15, 1949)
R. A. Beck, E. E. Sensel, A. J. Millendorf (to Texas Co.)

Nickel Catalysts

243. Aicher, A., Myddleton, W. and Wolker, J.
(Bindley Processes, Ltd., Surrey, England)
J. Soc. Chem. Ind. 54, 313 T (1935)
The production of hydrocarbon oils from industrial gases. I.
244. Balandin, A. A., Erofeev, B., Pecherskaia, K. and Stakhanova, M.
(Inst. of Chem., Acad. of Sci., USSR, Minsk)
J. Gen. Chem. (USSR) 11, (73) No. 8, 577 (1941)
On the nickel hydrides.
245. Chakravarty, K. M.
J. Indian Chem. Soc. 16, 663-70 (1939)
Catalytic formation of CH₄ from CO and H₂. VI. Poisoning by carbon deposition.
246. Chakravarty, K. M.
J. Indian Chem. Soc., Ind. and News Ed. 3, 185-92 (1940)
The conversion of coal into oil. The Fischer-Tropsch process.
247. Chakravarty, K. and Chakravarty, P. B.
(Dacca Univ., India)
Science and Culture 12, 110-11 (1946)
Effect of K₂CO₃ on nickel catalysts for the Fischer-Tropsch synthesis.
248. Eidus, Ia. T., Kazanskii, B. A. and Zelinskii, N. D.
Bull. Acad. Sci. U.R.S.S. (classe sci. chim.) 27-33 (1941)
The influence of the type of carrier on the synthesis of liquid hydrocarbons over Ni-MnO-Al₂O₃ catalysts at atmospheric pressure.
249. Fischer, F. and Meyer, H.
Brennst.-Chem. 14, 47, 64, 86 (1933)
250. Ghosh, J. G., Basak, N. G. and Bodami, G. N.
Current Sci. (India) 16, 353 (1947)
Ni-ThO₂-kieselguhr (100:10:100) catalyst for Fischer-Tropsch reaction.

251. Meller, A.
Australian Chem. Inst. J. and Proc. 10, 100-114, 123-9 (1943)
Catalytic hydrogenation of CO-CH₄ synthesis from water-gas.
252. Riesz, C. H., Lister, F., Smith, L. and Komarewsky, V. I.
(Inst. of Gas Tech., Chicago; Ill. Inst. of Tech., Chicago)
Ind. Eng. Chem. 40, 718-22 (1948)
Catalysts for the hydrocarbon synthesis.
253. Storch, H. H. et al.
U. S. Bureau of Mines Tech. Paper 709 (1948)
Influences on cobalt catalyst operation.
254. Trambouze, Y.
Compt. rend. 227, 971-2 (1948)
Chemical changes in Fischer catalysts during their preparation.
255. Trambouze, Y. and Perrier, M.
Compt. rend. 228, 1015-17 (1949)
The influence of the state of combination of the constituents of
nickel catalysts upon their activities in the Fischer synthesis.
256. Tsutsumi, S.
J. Fuel Soc. Japan 14, 110-116 (1935)
Synthetic gasoline from CO and H₂. III.
257. Tsutsumi, S.
J. Chem. Soc., Japan 58, 996-1001 (1937)
Studies on the promoting action of a catalyst promoter and carrier.
III. Selection of the catalyst for the synthesis of liquid hydro-
carbons from carbon monoxide and hydrogen.
258. Tsutsumi, S.
J. Chem. Soc. Japan 58, 1002-1006 (1937)
Studies on the promoting action of a catalyst promoter and carrier.
IV. The activity of the catalyst for the synthesis of liquid hydro-
carbons from CO and H₂.
259. Tsutsumi, S.
(Imperial Fuel Res. Inst., Kawagushi, Saitama)
Sci. Papers Inst. Phys. Chem. Research 36, 178 (1939)
Studies on catalysts for the synthesis of liquid hydrocarbons from
CO and H₂. V. Selection of catalysts for the synthesis. (1).
260. Tsutsumi, S.
Sci. Papers Inst. Phys. Chem. Research (Tokyo) 36, 251-61 (1939)
Catalysts for the synthesis of liquid hydrocarbons from CO and H₂.
VI. Selection of catalysts for the synthesis (2).
261. Zelinskii, N. D.
(Inst. of Organic Chem., Acad. of Sci., USSR)
Doklady, Acad. Sci. SSSR, 60, 235-7 (1948)
New synthesis of hydrocarbons from carbon monoxide.
262. Australian Patent 4473 (1931)
F. Fischer

263. British Patent 580,612 (September 13, 1946)
K. M. Chakravarty
264. German Patent 571,898 (1933)
F. Fischer
265. Japanese Patent 130,554 (June 15, 1939)
S. Tsutsumi (to Director of Nenryo Kenkyuzyo)
266. United States Patent 2,369,548
J. Elian
267. United States Patent 2,435,551
J. F. Black

Iron Catalysts

268. Atwell, H. V., Powell, A. R. and Storch, H. H.
Technical Oil Mission Report No. 5, July 19, 1945
Office of Publication Board Report No. 2051
Department of Commerce, Washington, D. C.
269. Antheaume, J., Decarriere, E. and Reant, R.
Chimie et Industrie 31, 421 (1934)
270. Decarriere, E. and Antheaume, J.
Compt. rend. 196, 1889 (1933)
271. Eidus, Ia. T.
(Inst. of Organic Chem., Acad. of Sci., USSR)
Bull. Acad. of Sci. USSR, Chem. Ser. No. 4, 255-62 (1944)
Investigation of catalysts for hydrogenation of CO by joint application of the dynamic and static method. I. Study of the activity of the complex $\text{Fe-Cu-ThO}_2\text{-K}_2\text{CO}_3$ -kieselguhr catalyst.
272. Eidus, Ia. T.
(Inst. of Organic Chem., Acad. of Sci., USSR)
Bull. Acad. of Sci. (USSR) Chem. Ser. No. 5, 349-58 (1944)
Catalyst for CO hydrogenation as studied by joint application of dynamic and static methods. II. Study of activity of catalyst composed of components of complex $\text{Fe-Cu-ThO}_2\text{-K}_2\text{CO}_3$ -kieselguhr catalysts.
273. Eidus, Ia. T.
(Inst. of Organic Chem., Acad. of Sci., USSR)
Bull. Acad. Sci. U.R.S.S., Sect. on Chem. No. 1, 62-70 (1945)
274. Fischer, F.
(Institute for Coal Research, Mulheim-Ruhr, Germany)
Pet. Refiner 23, No. 2, 112 (1944)
275. Fischer, F. and Tropsch, H.
Brennst.-Chem. 9, 21 (1928)

276. Ghosh, J. C. and Sen, S.
(Chemical Lab., Dacca Univ.)
J. of Indian Chem. Soc., 12, 53 (1935)
277. Hofer, L. J. E., Peebles, W. C. and Dieter, W. E.
(U. S. Bureau of Mines, Pittsburgh, Pa.)
J. Am. Chem. Soc. 68, (1946); 68, 1953-56 (1946)
X-ray diffraction and magnetic studies of unreduced ferric oxide Fischer-Tropsch catalysts.
278. Kodama, S. and Fujimura, S.
Sci. Papers, Inst. Phys. Chem. Research (Tokyo) 29, 272 (1936)
279. Kodama, S. and Tahara, H.
J. Soc. Chem. Ind. Japan 45, 1260-2 (1942)
X-ray investigation of Fe catalyst used in the synthesis of gasoline. I. Preliminary report.
280. Kodama, S., Tahara, H., Fukushima, I., Iwao, M., Komazawa, S. and Kimimura, K.
J. Soc. Chem. Ind. Japan 45, 1263-71 (1942)
Hydrocarbon synthesis from CO and H₂ under medium pressure.
281. Kodama, S., Tahara, H., Fukushima, I., Iwao, M., Komazawa, S. and Kimimura, K.
J. Soc. Chem. Ind. Japan 45, 1263-71 (1942)
IV. Effect of changing alkali, boric acid, and kieselguhr contents on the activity of Fe catalysts.
282. Kodama, S., Tohara, H., Fukushima, I., Iwao, M., Komozawa, S. and Kimimura, K.
J. Soc. Chem. Ind. Japan 45, 1263-71 (1942)
III. Effect of adding alkali and changes in the reaction temperature on the activity of Fe-Cu-Mn-H₃BO₃ catalysts.
283. Kodama, S., Tarama, K., Mishima, A., Fujita, K. and Yasuda, M.
J. Soc. Chem. Ind. (Japan) 44, 633 (1941)
284. Kodama, S., Tarama, K., Mishima, A., Fujita, K. and Yasuda, M.
J. Soc. Chem. Ind. (Japan) 46, 69-77 (1943)
Synthesis of gaseous hydrocarbons from CO and H₂.
285. Kodama, S., Tarama, K., Takozawa, T., Fujita, K., Tejima, T., Ito, S. and Yokomaku, Y.
J. Soc. Chem. Ind. (Japan) 48, (3-8) 1945
IX. Effect of addition of diatomaceous earth on Fe catalyst.
286. LeClerc, G.
Compt. rend. 207, 1099 (1938)
On the activity of cubic iron sesquioxide in the synthesis of hydrocarbons by the hydrogenation of CO at atmospheric pressure.

287. Lefebvre, H. and LeClerc, G.
Compt. rend. 203, 1378 (1936)
 Thermomagnetic study of the iron catalysts used in the Fischer-Tropsch synthesis of hydrocarbons.
288. Makino, S., Koide, H. and Murata, Y.
J. Soc. Chem. Ind. (Japan) 43, (Suppl. Bonding) 235-41 (1940)
 The benzine synthesis from carbon monoxide and hydrogen. LIII.
 Influence of aluminum oxide, silver and other addition agents upon the iron catalyst.
289. Makino, S., Koide, H. and Murata, Y.
Sci. Papers, Inst. Phys. Chem. Research (Tokyo) 37, 350-55 (1940)
 in German
 The benzine synthesis from CO and H₂. LIII. Influence of Al₂O₃, Ag and other addition agents upon Fe catalysts.
290. Morozov, N. M.
 (Karpov Inst. of Phys. Chem., Moscow)
Trans. Faraday Soc. 31, 559-568 (1935)
 The kinetics of sorption processes of H₂ on iron.
291. Murata, Y.
J. Soc. Chem. Ind. (Japan) 43, 508 (1940)
292. Murata, Y. and Makino, S.
Sci. Papers, Inst. Phys. Chem. Research (Tokyo) 37, 338-49 (1940)-
 in German
 The benzine synthesis from CO and H₂. LII.
293. Murata, Y., Makino, S. and Tsuneoka, S.
J. Soc. Chem. Ind. (Japan) 42, (Suppl. Binding) 114 (1939)
294. Murata, Y., Nokagawa, M., Tashiro, E. and Umemura, T.
J. Soc. Ind. Chem. Japan 45, 52-58 (1943)
 LXIV. Methods of preparing iron catalyst.
295. Murata, Y., Nokagawa, M., Tashiro, E. and Umemura, T.
J. Soc. Chem. Ind. Japan 45, 52-58 (1943)
 LXV. Reduction by H₂ and heat treatment of Fe catalysts.
296. Murata, Y., Tatsuki, Y., Yamada, H. and Sawada, Y.
J. Soc. Chem. Ind. (Japan) 45, 557-60 (1942)
297. Murata, Y., Tatsuki, Y., Yamada, H. and Sawada, Y.
J. Soc. Chem. Ind. (Japan) 45, 675-7 (1942)
 LIX. Activation of Fe-Cu catalysts by boron.
298. Murata, Y. and Yamada, T.
Sci. Papers, Inst. Phys. Chem. Research (Tokyo) 38, 118-31 (1940) - in German
 The benzene synthesis from carbon monoxide and hydrogen under ordinary pressure. LIV. Influence of carbon dioxide in the initial gas upon the iron catalyst.

299. Murata, Y. and Yamada, T.
Sci. Papers, Inst. Phys. Chem. Research (Tokyo) 38, 218-29 (1941) - in
The benzine synthesis from carbon monoxide and hydrogen German
under ordinary pressure. LV. Influence of nitrogen, methane,
oxygen, and ammonia in the initial gas upon the iron catalyst.
300. Murata, Y., Yashiro, R. and Tashiro, E.
J. Soc. Chem. Ind. Japan 45, 1117-21 (1942)
LXII. Durability of Fe catalyst and the composition of gas used in
the synthesis.
301. Schroeder, W. C.
Oil and Gas J. 44, No. 29, 112 (1945)
302. Shiroi, S., Kinumaki, S., and Ogawa, T.
J. Soc. Chem. Ind. Japan 46, 329-31 (1943)
Fe catalyst for synthesis of gasoline.
303. Storch, H. H.
J. Wiley and Sons, New York (1945)
Chemistry of Coal Utilization (Chapter 39, Synthesis of Hydrocarbons
From Water-Gas)
304. Storch, H. H.
(U. S. Bureau of Mines, Pittsburgh, Pa.)
Ind. Eng. Chem. 37, 340-51 (1945)
Catalysis in synthetic liquid fuels processes.
305. Storch, H. H.
The Crucible 31, No. 2, 52 (1946)
306. Tsuneoka, S., Murata, Y. and Makino, S.
Sci. Papers, Inst. Phys. Chem. Research (Tokyo) 35, 330 (1939)
307. British Patent 269,677 (1926)
Johnson, J. Y. (To I. G. Farbenindustrie, A.-G.)
308. British Patent 270,705 (1926)
(To I. G. Farbenindustrie, A.-G.)
309. British Patent 271,452 (1926)
(To I. G. Farbenindustrie, A.-G.)
310. British Patent 473,932 (1937)
(To I. G. Farbenindustrie, A.-G.)
311. British Patent 474,448 (1937)
(To I. G. Farbenindustrie, A.-G.)
312. British Patent 490,090 (1938)
(To I. G. Farbenindustrie, A.-G.)
313. British Patent 496,880 (1938)
(To I. G. Farbenindustrie, A.-G.)

314. British Patent 502,542 (1939)
(To I. G. Farbenindustrie, A.-G.)
315. British Patent 538,225 (1941)
International Hydrocarbon Synthesis Co.)
316. British Patent 502,542 (1939)
(To I. G. Farbenindustrie, A.-G.)
317. British Patent 620,775 (1949)
(To Standard Oil Development Co.)
318. Dutch Patent 53,611 (1942)
International Hydrocarbon Synthesis Co.)
319. Dutch Patent 55,196 (1943)
International Hydrocarbon Synthesis Co.)
320. French Patent 49,424 (1939)
(To I. G. Farbenindustrie, A.-G.)
321. French Patent 814,636 (1937)
(To I. G. Farbenindustrie, A.-G.)
322. German Patent 736,977 (1943)
Herbert, W., Schall, A. and Gross, H. W. (To Metallgesellschaft, A.-G.)
323. German Patent 738,091 (1943)
Fischer, F. and Pichler, H. (To Studien- and Verviertungs. G.m.b.H.)
324. German Patent 742,376 (1943)
Herbert, W. (To Metallgesellschaft, A.-G.)
325. U. S. Patent 1,698,602 (1929)
Mittasch, A., Muller, C., Schlecht, C. and Schubardt, W.
(To I. G. Farbenindustrie. A.-G.)
326. U. S. Patent 2,167,004 (1939)
Pier, M., Michael, W. and Jaeckh, W.
(To I. G. Farbenindustrie, A.-G.)
327. U. S. Patent 2,211,022 (August 13)
Michael, W. and Jaeckh, W.
(To W. E. Currie)
328. U. S. Patent 2,220,261 (1940)
Michael, W. and Jaeckh, W.
(To W. E. Currie)
329. U. S. Patent 2,254,748 (Sept. 2)
Michael, W. and Jaeckh, W.
(To W. E. Currie)
330. U. S. Patent 2,254,806 (Sept. 2)
Michael, W.
(To W. E. Currie)

331. U. S. Patent 2,279,052 (April 7)
Michael, W. and Plauth, E.
(To Standard Catalytic Co.)
332. U. S. Patent 2,296,405 (Sept. 22)
Scheuermann, A. and Marecek, E.
(vested in the Alien Property Custodian)
333. U. S. Patent 2,369,106 (1945)
Heckel, H. and Roelen, O.
(vested in the Alien Property Custodian)
334. U. S. Patent 2,438,584 (1948)
Stewart, M. M.
(To Texas Co.)
335. U. S. Patent 2,446,426 (1948)
Layng, E. T.
(To Hydrocarbon Research Inc.)
336. U. S. Patent 2,449,775 (1948)
Hendriksen, W. E.
(To Hydrocarbon Research Inc.)
337. U. S. Patent 2,453,874 (Nov. 16, 1948)
Sweeter, S. B.
(To Standard Oil Development Co.)
338. U. S. Patent 2,454,398 (1948)
Mosesman, M. A.
(To Standard Oil Development Co.)
339. U. S. Patent 2,455,696 (1948)
Mosesman, M. A.
(To Standard Oil Development Co.)
340. U. S. Patent 2,458,870 (1949)
Ogorzaly, H. J.
(To Standard Oil Development Co.)
341. U. S. Patent 2,465,313 (1949)
Mosesman, M. A.
(To Standard Oil Developement Co.)
342. U. S. Patent 2,469,755 (1949)
Voorhies, A., Jr.
(To Standard Oil Development Co.)
343. U. S. Patent 2,471,913 (1949)
Sumerford, S. D.
(To Standard Oil Development Co.)
344. U. S. Patent 2,472,501 (1949)
Sweeter, S. B.
(To Standard Oil Development Co.)

Ruthenium Catalysts

345. Atwell, H. V., Powell, A. R. and Storch, H. H.
Technical Oil Mission Report No. 5, July 19, 1945
Office of Publication Board Report No. 2051
Department of Commerce, Washington, D. C.
346. Fischer, F., Bahr, T. and Meusel, A.
Brennst.-chem. 16, 466 (1935)
347. Fischer, F. and Buffleb, H.
Brennst.-chem. 21, 285 (1940)
348. Fischer, F. and Pichler, H.
Brennst.-chem. 20, No. 13, 247 (1939); Refiner Natural Gasoline
Mfr. 19, 479-81 (1940)
Factors in the synthesis of Kogasin and paraffin in water phase.
349. Galumbic, N.
U. S. Bur. of Mines Rept. Invest. No. 4467, 58 pp. (1949)
Some chemicals from synthetic liquid fuel processes.
350. Hall, C. C.
(Fuel Res. Sta., Greenwich, England)
Chemistry and Industry 67-75 (1947).
The operation and development of the Fischer-Tropsch and similar
process in Germany.
351. Pichler, H.
Brennst.-chem. 19, 226 (1938)
352. Pichler, H. and Buffleb, H.
Brennst.-chem. 21, 257-64 (1940)
Synthesis of paraffin (wax) on ruthenium catalyst at pressures up to
1000 atmospheres.
353. Pichler, H. and Buffleb, H.
Brennst.-chem. 21, 273-80 (1940)
Behavior of ruthenium catalysts in synthesis of paraffin hydrocarbons
of high molecular weight.
354. Storch, H. H.
(U. S. Bureau of Mines, Pittsburgh, Pa.)
Ind. Eng. Chem. 37, 340-51 (1945)
Catalysis in synthetic liquid fuels processes.

Fluid Catalysts

355. Beck, R. A.
(The Texas Co., Beacon, N. Y.)
Ind. Eng. Chem. 41, 1242-43 (1949)
Evaluation of fluid catalysts. Development of laboratory scale units.

356. Leva, M., Grummer, M., Weintraub, M. and Storch, H. H.
(U. S. Bureau of Mines, Pittsburgh, Pa.)
Chem. Eng. Progress 44, No. 9, 707-16 (1948)
A study of fluidization of an iron catalyst.
357. Murphree, E. V., Gohr, E. J. and Kaulakis, A. F.
(Standard Oil Development Co., Elizabeth, N. J.)
J. Inst. Petroleum 33, 608-20 (1947)
The fluid-solids technique: applications in the petroleum industry.
358. British Patent 598,380 (1948)
(To Standard Oil Development Co.)
359. British Patent 615,381 (1949)
(To Standard Oil Development Co.)
360. British Patent 616,499 (1949)
(To Standard Oil Development Co.)
361. U. S. Patent 2,266,161 (1941)
Campbell, D. L. and Barr, F. T.
(To Standard Oil Development Co.)
362. U. S. Patent 2,347,682 (1941)
Gunness, R. C.
(To Standard Oil Co. of Indiana)
363. U. S. Patent 2,393,909 (1946)
Johnson, E. A.
(To Standard Oil Co. of Indiana)
364. U. S. Patent 2,417,164 (1947)
Huber, H. B., Jr.
(To Standard Oil Co. of Indiana)
365. U. S. Patent 2,451,879 (1948)
Scharmann, W. G.
(To Standard Oil Co. of Indiana)
366. U. S. Patent 2,468,494 (1949)
Griffin, L. I., Jr.
(To Standard Oil Development Co.)

Alloy Skeleton Catalysts

367. Fischer, F. and Meyer, K.
Brennst.-chem. 15, 84 (1934)
Alloy skeletons as catalysts for synthesis of benzine from CO.
368. Fujimura, K. and Tsuneoka, S.
J. Soc. Chem. Ind. (Japan) 36, (Suppl. Binding) 119, 413 (1933)
369. Kita, G.
J. of the Fuel Soc. (Japan) 16, 60 (1937)

370. Lel'chuk, S. L., Balandin, A. A. and Vaskevich, D. N.
Uspuki Khim. 14, No. 3, 185 (1945)
Skeleton catalysts and their application in organic chemistry.
371. Lel'chuk, S. L.
Doklady Acad. Sci. (USSR) 56, No. 9, 933-35 (1947)
Co-Si-Al prepared in a high frequency furnace.
372. Murata, Y. and Tsuneoka, S.
J. Soc. Chem. Ind. (Japan) 32, (Suppl. Binding) 329 (1936)
373. Murata, Y., Tsuneoka, S. and Ishikawa, S.
J. Soc. Chem. Ind. (Japan) 32, (Suppl. Bindin) 294, 325 (1936)
Benzine synthesis from CO and H₂ at ordinary pressure. XXXI. The influence of current velocity.
374. Murata, Y., Tsuneoka, S. and Ishikawa, S.
Sci. Papers Inst. Phys. Chem. Research (Japan) 30, 30 (1936)
375. Raney, M.
J. Am. Chem. Soc. 54, 4116 (1932)
376. Rapaport, I. B. and Polozhentseva, E.
Khim. Tverdovo Topliva 2, 64 (1938)
377. Tsuneoka, S.
J. Soc. Chem. Ind. (Japan) 37, (Suppl. Binding) 738 (1934)
Synthesis of benzine.
378. Tsuneoka, S. and Kuroda, R.
Sci. Papers Inst. Phys. Chem. Research (Tokyo) 33, 333 (1937)
On the benzine synthesis from CO and H₂ under normal pressure. XXXIV.
On the analytical investigation of an alloy-catalyst.
379. Tsuneoka, S. and Kuroda, R.
J. Soc. Chem. Ind. (Japan) 40, (Suppl. Binding) 449 (1937)
380. Tsuneoka, S. and Murata, Y.
J. Soc. Chem. Ind. (Japan) 40, 438 (1937)
Benzine synthesis from carbon monoxide and hydrogen. XXXII. Studies on the material of the reaction furnace.
381. Tsuneoka, S. and Murata, Y.
J. Soc. Chem. Ind. (Japan) 39, 267 (1936)
Benzine synthesis from CO and H₂. XXVII. Cobalt alloy catalysts.
382. Tsuneoka, S. and Murata, Y.
J. Soc. Chem. Ind. (Japan) 38, 199 (1935)
Benzine synthesis from carbon monoxide and hydrogen. XXIII. The extracting and leaching of alloy catalysts.
383. Tsuneoka, S. and Murata, Y.
Sci. Papers, Inst. Phys. Chem. Research (Tokyo) 30, 1 (1936)
Nickel alloy catalysts.

384. Tsuneoka, S. and Murata, Y.
Sci. Papers, Inst. Phys. Chem. Research (Tokyo) 33, 305 (1937)
385. Tsutsumi, S.
J. of the Fuel Soc. (Japan) 16, 55 (1937)
386. U. S. Patent 1,563,587 (1925)
Raney, M.
387. U. S. Patent 1,628,190 (1927)
Raney, M.
388. U. S. Patent 1,915,473 (1933)
Raney, M.
389. U. S. Patent 2,388,959 (1945)
Drew, J.
(To Hercules Powder Co.)
390. U. S. Patent 2,360,787 (1944)
Murphree, E. V., Tyson, C. W., Campbell, D. H. and Martin, H. Z.
(To Standard Catalytic Co.)

Reaction Products

391. Atwell, H. V., Powell, A. R. and Storch, H. H.
Technical Oil Mission Report No. 5, (1945)
Office of Publication Board Report No. 2051
Department of Commerce, Washington, D. C.
392. Atwell, H. V. and Schroeder, W. C.
Office of Publication Board Report No. 9
Department of Commerce, Washington, D. C.
393. Bellamy, L. J. and Millson, K. T.
Office of Publication Board Report No. 6
Department of Commerce, Washington, D. C.
394. Bender, R. J.
Natl. Petroleum News, Tech. Sect., 38, No. 6, R-105 (1946)
395. Boldeschwieler, E. L.
Office of Publication Board Report No. 225
Department of Commerce, Washington, D. C.
396. Dannefelser, W.
Oel u. Kohle 38, 363 (1942)
397. Cotton, E.
Natl. Petroleum News, Tech. Sect., 38, No. 23, R-425 (1946)
398. Dazeley, G. H. and Gall, D.
(Fuel Res. Sta., Greenwich, England)
Petroleum (London) 2, No. 9, 208-10 (1946)
Lubricating oils from Fischer-Tropsch olefins, using water gas as raw material.

399. Dazeley, G. H. and Hall, C. C.
(Fuel Res. Sta., Greenwich, England)
Petroleum (London) 11, 14-15, 26, 41-44 (1948)
The preparation of lubricating oils from hydrocarbon synthesis products.
I, II.
400. Eidus, Ia. T., Zelinskii, N. D. and Puzitskii, K. V.
(Inst. of Org. Chem., Acad. of Sci. USSR)
Bull. Acad. of Sci. (USSR) No. 3, 328 (1949)
On the catalytic hydrocondensation of carbon monoxide with olefins.
II. Investigation of liquid products of hydrocondensation of carbon monoxide with ethylene.
401. Faraghev, W. F. and Horne, W. A.
U. S. Bureau of Mines, Inf. Circ. 7376, 27 pp. (1946)
Interrogation of Dr. Piev and staff, I. G. Farbenindustrie A.-G.
Ludwigshafen and Oppau.
402. Firsanova, E. N.
J. Applied Chem. (USSR) 18, 367-71 (1945)
Study of chemical composition of synthin. II. The analysis of the water obtained in the synthesis of hydrocarbons.
403. Fischer, F.
Ber. der Deutsch. Chem. Gesell. 71A 56 (1938)
404. Friedel, R. A. and Anderson, R. B.
(U. S. Bureau of Mines)
J. Am. Chem. Soc. 72, No. 3, 1212 (1950)
Composition of synthetic fuels. I. Product distribution and analysis of C₅-C₈ paraffin isomers from cobalt catalyst.
405. Friedel, R. A. and Anderson, R. B.
J. Am. Chem. Soc. 72, No. 5, 2307 (1950)
406. Gall, D.
(Fuel Res. Sta., Greenwich, England)
J. Soc. Chem. Ind. 65, 185-89 (1946)
Production of lubricating oils from the olefins in the Fischer-Tropsch synthesis.
407. Columbic, N.
U. S. Bureau of Mines, Report of Investigation No. 4467
408. Hall, C. C.
Technical Oil Mission Report No. 10, (1945)
409. Hall, C. C.
(Fuel Res. Sta., Greenwich, England)
Chemistry and Industry 67-75 (1947)
The operation and development of the Fischer-Tropsch and similar processes in Germany.
410. Hall, C. C. and Haensel, V.
Technical Oil Mission Report No. 44, (1944)

411. Horne, W. A. and Jones, J. P.
Office of Publication Board Report No. 294
Department of Commerce, Washington, D. C.
412. Howat, D. D.
Chem. Age (London) 44, 57-60 (1941)
Synthesis of oils from industrial gases. The Fischer-Tropsch and allied processes.
413. Imhausen, A.
Kolloid. Z. 103, 105-08 (1943)
The importance of synthetic fatty acids for the German fat economy.
414. Keith, P. C.
Oil and Gas J. 45, No. 6, 102 (1946)
415. Koch, H. and Ibing, G.
Petroleum Refiner 22, No. 9, 89 (1943)
416. Kolbel, H.
Brennst.-chem. 20, 352-55 (1939)
The importance of the Fischer-Tropsch synthesis for the production of domestic Diesel fuel.
417. Kuckina, R.
Pharmazie 3, 439-44 (1948)
418. Landen, E. W.
S. A. E. Journal 54, No. 6, 270 (1946)
419. Montgomery, C. W. and Weinberger, E. B.
J. Chem. Physics 16, 424-25 (1948)
420. Oberfell, G. G.
Natl. Petroleum News, Tech. Sect. 38, No. 1, R-46 (1946)
421. Ohme, W.
Oel u Kohle 40, 87-89 (1944)
422. Pichler, H. and Buffeb, H.
Brennst.-chem. 21, 285-88 (1940)
Properties of some solid paraffins produced from carbon monoxide and hydrogen at high pressures on ruthenium catalysts, with special reference to the previously unknown highest-melting constituents.
423. Snodgrass, C. S. and Perrin, M.
J. of the Inst. of Petroleum Technologists 24, 289 (1938)
424. Storch, H. H.
J. Wiley and Sons, New York (1945)
Chemistry of Coal Utilization (Chapter 39, Synthesis of Hydrocarbons From Water Gas)
425. Teet, H. C. and Dees, H. C.
Office of Publication Board Report No. 101
Department of Commerce, Washington, D. C.

426. Thompson, G. H.
Monthly Bull. of the British Coal Utilization Assoc., 191 (1944)
427. Underwood, A. J. V.
Ind. and Eng. Chem. 32, No. 4, 449 (1940)
428. Weil, B. H. and Lane, J. C.
Petroleum Refiner 25, No. 10, 493 (1946)
429. Weller, S. and Friedel, R. A.
(Bureau of Mines, Pittsburgh, Pa.)
J. Chem. Phys. 17, 801-03 (1949)
Isomer distribution in hydrocarbons from the Fischer-Tropsch process.
430. British Patent 517,002 (1940)
(To Studien-und Verwertungs G.m.b.H.)
431. French Patent 824,893 (1938)
(To Studien-und Verwertungs G.m.b.H.)

Reaction Mechanism

432. Audibert and Raineau
Ind. and Eng. Chem. 21, 883 (1929)
433. Bahr, N. A. and Bahr, W.
Ber. 61B, 2177-83 (1928)
Mechanism.
434. Bashkirov, A. N., Krinkov, In. B. and Kogan, Ia. B.
Doklady Acad. Sci. (USSR) 67, No. 6, 1029 (1949)
To the question concerning the mechanism of hydrocarbons from CO and H₂.
435. Braude, G., Shurmovskiaia, N. and Bruns, B.
(Inst. Nitrogen Industry, Moscow)
J. Phys. Chem. (USSR) 22, 483-86 (1948)
The kinetics and mechanism of the catalytic hydrogenation of CO. I. A method of preparation of metal catalysts from oxides and handling the catalyst without contact with the air.
436. Braude, G., Shurmovskiaia, N. and Bruns, B.
(Inst. Nitrogen Industry, Moscow)
J. Phys. Chem. (USSR) 22, 483, 487 (1948)
The kinetics and mechanism of the catalytic hydrogenation of carbon monoxide.
437. Craxford, S. R.
(Fuel Res. Sta., Greenwich, England)
Trans. Faraday Soc. 35, 946-58 (1939)
III. The mechanism of the technical synthesis and transformation of hydrocarbons.

438. Craxford, S. R. and Rideal, E. K.
(Cambridge University)
J. Chem. Soc. 1604 (1939)
The mechanism of the synthesis of hydrocarbons from water-gas.
439. Elvins, O. C.
J. Soc. Chem. Ind. 46, T-473-78 (1927)
Metallic carbonyls. Co-Cu-MnO catalyst used.
440. Elvins, O. C. and Nash, A. W.
Nature 118, 154 (1926)
The reduction of carbon monoxide.
441. Elvins, O. C. and Nash, A. W.
Fuel 5, 263-65 (1926)
442. Eidus, Ia. T. and Pusitzkii, K. V.
Compt. rend. (Doklady) Acad. Sci. U.R.S.S. 54, 35-38 (1946) -in English
Catalytic hydrocondensation of CO with ethylene.
443. Eidus, Ia. T. and Zelinskii, N. D.
(Inst. of Org. Chem., Acad. of Sci., USSR)
Bull. Acad. Sci. U.R.S.S., Classe Sci. chim. (2) 289-93 (1940)
Intermediate formation of methylene radicals during the catalytic synthesis of aliphatic hydrocarbons from carbon monoxide and hydrogen.
444. Eidus, Ia. T. and Zelinskii, N. D.
(Inst. of Org. Chem., Acad. of Sci., USSR)
Bull. Acad. Sci. U.R.S.S., Classe Sci. chim. 190-94 (1942)
Carbide formation as an intermediate stage in the catalytic synthesis of hydrocarbons from water-gas.
445. Fischer, F. and Koch, H.
Brennst.-chem. 13, 61-68 (1932)
Synthesis of benzine.
446. Fischer, F. and Tropsch, H.
Ber. 59B, 830-6 (1926)
Direct synthesis of petroleum hydrocarbons at ordinary pressure. I, II.
447. Hamai, S.
(The Central Lab., South Manchuria Railway, Co.)
Bull. Chem. Soc. (Japan) 16, 213-28 (1941)
Physicochemical investigations on catalytic mechanism. II. The Fischer-Tropsch synthesis of hydrocarbons with special reference to its reaction mechanism.
448. Hamai, S.
J. Chem. Soc. (Japan) 62, 516-18 (1941)
Physicochemical investigations of catalytic mechanism. I. Fischer-Tropsch synthesis of hydrocarbons with special reference to its mechanism.
449. Hamai, S., Hayashi, S., Shimamura, K. and Igarashi, H.
Bull. Chem. Soc. (Japan) 17, 166-71 (1942)
Physicochemical investigations of catalytic mechanisms. IV. The Fischer-Tropsch synthesis of hydrocarbon (experimental series I).

450. Herington, E. F. G.
(Dept. of Colloid Science, Cambridge, University)
Chem. and Ind. 24, 346-47 (1946)
The Fischer-Tropsch synthesis considered as a polymerization reaction.
451. Hofer, L. J. E.
U. S. Bureau of Mines Report of Investigation 3770, 39 pp. (1944)
The preparation and properties of metal carbides with critical comments
as to their significance in the Fischer-Tropsch synthesis.
452. Karzhavin, V. A.
Uspekhi Khim. 16, No. 3, 327 (1945)
Catalytic synthesis of hydrocarbons from carbon monoxide.
453. Kling, A.
(Laboratoire Municipal Chimie, Paris)
Parfumerie 1, No. 7, 185-88 (1943)
454. Kummer, J. T., Browning, L. C. and Emmett, P. H.
(Mellon Inst., Pittsburgh, Pa.)
J. Chem. Phys. 16, No. 7, 739-40 (1948)
Thermodynamic calculations concerning the possible participation of the
carbides of iron as intermediate in Fischer-Tropsch synthesis.
455. Kummer, J. T., Dewitt, T. W. and Emmett, P. H.
(Mellon Inst., Pittsburgh, Pa.)
J. Am. Chem. Soc. 70, 3632-43 (1948)
Some mechanism studies of the Fischer-Tropsch synthesis using C¹⁴.
456. Matsumura, S., Tamara, K. and Kodama, S.
Sci. Papers, Inst. Phys. Chem. Res. (Japan) 37, 302 (1940)
457. Perrin, M.
Compt. rend. 224, 342-43 (1947)
The evolution of activity of catalysts in the Fischer synthesis.
458. Pospekhov, D. A.
Sbornik Nauch-Issledovatel. Rabot Kiev. Tekh. Inst. Kozhevenno-Obuvnoi
Prom. 3, 261-67 (1940); Referat. Zhur. 4, No. 5, 12 (1941)
The mechanism of catalytic syntheses from hydrogen and carbon monoxide.
(A preliminary report.)
459. Robinet, P.
(Ingenieur Chimiste I. C. Nancy)
Chimie et industrie 47, 480-82 (1942)
Hydropolymerization of carbon monoxide.
460. Schuman, S. C.
(Hydrocarbon Res. Inc., Trenton, N. J.)
J. Chem. Phys. 16, 1175 (1948)
The role of the carbides of iron in the Fischer-Tropsch synthesis.
461. Smith, D. F., Hawk, C. O. and Golden, P.
(U. S. Bureau of Mines)
J. Am. Chem. Soc. 52, 3221-32 (1930)
The mechanism of the formation of higher hydrocarbons from water-gas.

462. Tibboth, J. A.
 (Fuel Res. Sta., Greenwich, England)
 J. Soc. Chem. Ind. (London) 67, 62-66 (1948)
 The decomposition of CO by Ni catalysts. The reaction mechanism between 250° and 450°.
463. Warner, B. R., Derrig, M. J. and Montgomery, C. W.
 (Gulf Research and Development Co., Pittsburgh, Pa.)
 J. Am. Chem. Soc. 68, 1615-17 (1946)
464. Weller, S.
 (U. S. Bureau of Mines, Pittsburgh, Pa.)
 J. Am. Chem. Soc. 69, 2432-36 (1947)
 Kinetics of carbiding and hydrocarbon synthesis with Co Fischer-Tropsch catalysts.

Kinetics

465. Anderson, R. B., Krieg, A., Friedel, R. A. and Mason, L. S.
 (U. S. Bureau of Mines, Pittsburgh, Pa.)
 Ind. Eng. Chem. 41, No. 10, 2189-96 (1949)
 Fischer-Tropsch Process.
466. Bogdasar'ian, S.
 (L. Ya. Karpov Physico-chemical Inst., Moscow)
 J. Phys. Chem. (USSR) 15, No. 1, 40 (1941)
 On the absolute rate of heterogeneous reactions.
467. Erofeev, B. V., Runtso, A. P. and Volkova, A. A.
 (Chem. Inst. of White Russian Acad. of Sci., Minsk)
 Acta Physicochim. U.R.S.S. 13, 111-22 (1940) -in German
 Kinetics of the catalytic reduction to hydrocarbons of carbon monoxide by hydrogen on a Co-Thorium catalyst.
468. Fuzek, J. F. and Smith, H. A.
 (University of Tenn.)
 J. Am. Chem. Soc. 70, 3743-45 (1948)
 Kinetics of heterogeneous reactions with special reference to catalytic hydrogenation.
469. Gol'danskii, V. I.
 J. Phys. Chem. (USSR) 22, 1374-80 (1948)
 Dependence of the rate of heterogeneous catalytic reactions on the amount of catalyst.
470. Grekhnev, M. A. and Eroshevskii, I. G.
 (The All-Union Scientific Res. Inst. of the Sulfite-Alcohol and Hydrolysis Ind.)
 J. Gen. Chem. (USSR) 15, (77) No. 3, 146 (1945)
 On the relation between the rate of catalytic reactions and the amounts of catalyst used.

471. Haugen, O. A. and Watson, K. M.
(University of Wisconsin, Madison, Wis.)
Ind. Eng. Chem. 35, 529-41 (1943)
Solid catalysts and reaction rates (general principles).
472. Pshezhetskii, Ia. and Gladyshev, A. T.
(Karpov Phys. Chem. Inst., Moscow)
J. Phys. Chem. (USSR) 15, No. 3, 333 (1941)
Kinetics of the catalytic dimerization of ethylene.
473. Sedov, L. I.
Doklady Acad. Sci. (USSR) No. 1, 73 (1948)
General form of equation of kinetics for chemical reaction in gases.
474. Todes, O. M.
(Inst. of Colloid and Electrochemistry, Moscow)
Acta Physicochim. (USSR) 21, No. 4, 689 (1946)
The kinetics of exothermal catalytic reactions in a current. I.
Theory of reaction on a long contact layer.