Freedom-to-Operate Study: HDPE Fuel Tanks

PIUG 2007 Northeast Conference

Thomas E. Wolff, Ph.D.

Wolff Information Consulting LLC

Outline

- What is “freedom-to-operate”?
- FTO analysis by attorneys
- Rules for successful FTO searches
- Case study: HDPE Fuel Tank

Freedom-to-Operate

- Synonyms: freedom-to-operate (FTO), freedom-to-practice (FTP), clearance, infringement, noninfringement, right-to-use
- No identifiable patent barriers to the commercialization of products or processes
  - No *relevant unexpired* patents in the *locations* targeted for manufacture, sale or use
  - No relevant patent applications that could become barriers

Freedom-to-Operate Analysis by Attorneys

- "The single most difficult issue for a patent practitioner to deal with on a day-to-day basis" – patent attorney
- Requires explicit and accurate definition at the beginning
- Requires a comprehensive search
- Claims analysis for literal infringement and under "doctrine of equivalents" if necessary – understand claims in context of whole specification and prosecution history
- Never 100% up-to-date – 18 months publication delay
- Ends with a risk assessment
- There is never any certainty of the end result, only a comfort level

Rules for Successful FTO Searches

1. Verify and verify again the scope with the customer
2. Don’t miss the obvious references
3. Carry out search in two independent parts
4. Be sure you know why you are rejecting each reference and think twice about it
5. Present the results in the fashion that your customer can best use
6. Expect to defend your search

Rule 1: Verify and Verify Again the Scope with the Customer

- Customer interview with search professional and/or patent attorney
- Prepare cover letter with explicit and accurate definition of the matter
  - Subject definition
  - Geographic limitations
  - Expiry considerations
- Provide clear explanation of search scope
- Get feedback on cover letter and search scope
- Revise search scope and strategy throughout search process

Subject: HDPE Fuel Tank

- Ethylene homopolymer or copolymer comprising ethylene and not more than 10% by weight of an alpha-olefin having from 3 to 20 carbon atoms
- Density of from 0.945 to 0.970 g/cm3 [HDPE is defined by a density of greater or equal to 0.941 g/cc]
- Prepared by classic Ziegler-Natta catalysts, i.e. titanium chloride (TiCl3, TiCl4; group IVB, 4B, IUPAC 4) – alkylaluminum (AlEt3, Et2AlCl, EtAlCl2...; group IIIA, 3A, IUPAC 13) with or without supports or modifiers
- Intrinsic viscosity of from 2 to 6 dl/g
- Blow mold fuel tank
- US and Europe

Search Scope: HDPE Fuel Tank

Initial Definition	Search Scope
Ethylene homopolymer or copolyolefin	C2 homopolymer, C2/C3+ olefin copolymer
Density 0.945-0.970 g/cc	“High density”; 0.94, 0.95, 0.96, 0.97, 0.98 g/cc
Ziegler-Natta catalysis	Post search evaluation only
Intrinsic viscosity 2-6 dl/g	Intrinsic viscosity but values in post search only
Fuel tank	Vehicle or fuel tanks, drums, reservoirs; blow molded or hollow articles
US and Europe	EP, US and WO patents and application – generally since 1985

Rule 2: Don't Miss the Obvious References

- Carry out initial search with broadest acceptable search terms – MicroPatent, USPTO, Espacenet, QPat, PatBase
- Prepare search strategy for full search
- Prepare cost estimate if necessary

Find Obvious References: HDPE Fuel Tank

- Espacenet (title and abstract): polyethylene and fuel and tank
- MicroPatent (claims, title, abstract; 1981-2007): ((fuel or gasoline or petrol or fluid or vehicle or car or automobile) near1 (tank or drum or reservoir) or (hollow near3 (body or mold* or mould* or article)) or (blow* near2 (mold* or mould* or article) or parison)) and "intrinsic viscosity“

Rule 3: Carry Out Search in Two Independent Parts

1. Full text of claims, title, abstract – requires extensive use of term variations and synonyms
   - Full-text databases (USPATFULL, EPFULL, PCTFULL)
   - MicroPatent
2. Value-added databases – indexing and text search terms
   - Chemical Abstracts (CAPLUS) - CASRN®, indexing (old basic index)
   - Thomson Derwent World Patents Index (DWPI) – Derwent polymer indexing terms and text search terms
   - IFI CLAIMS US Patents (IFICDB) – IFI thesaurus terms and text search terms

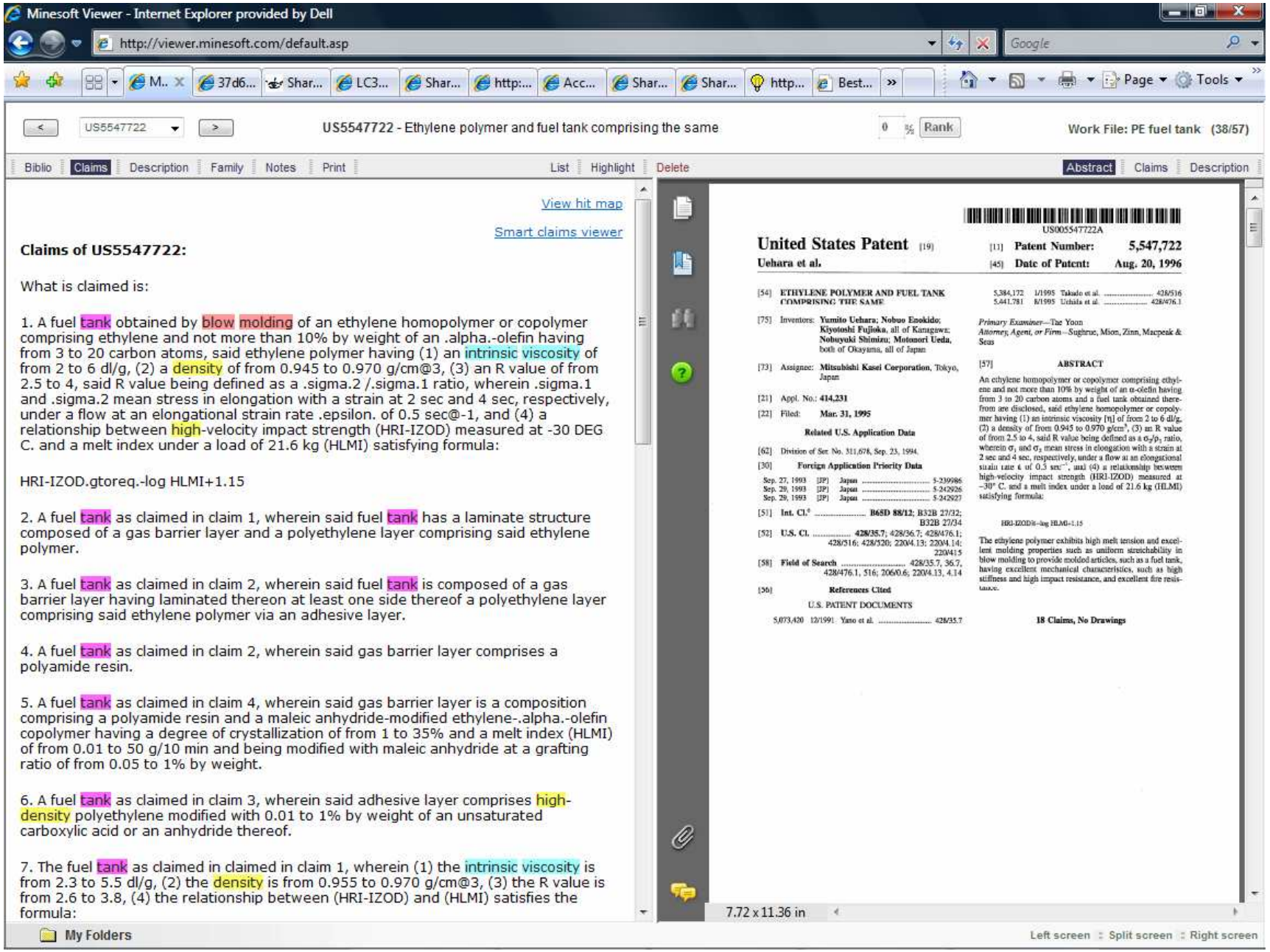
- Combine patent numbers for claims/specification analysis

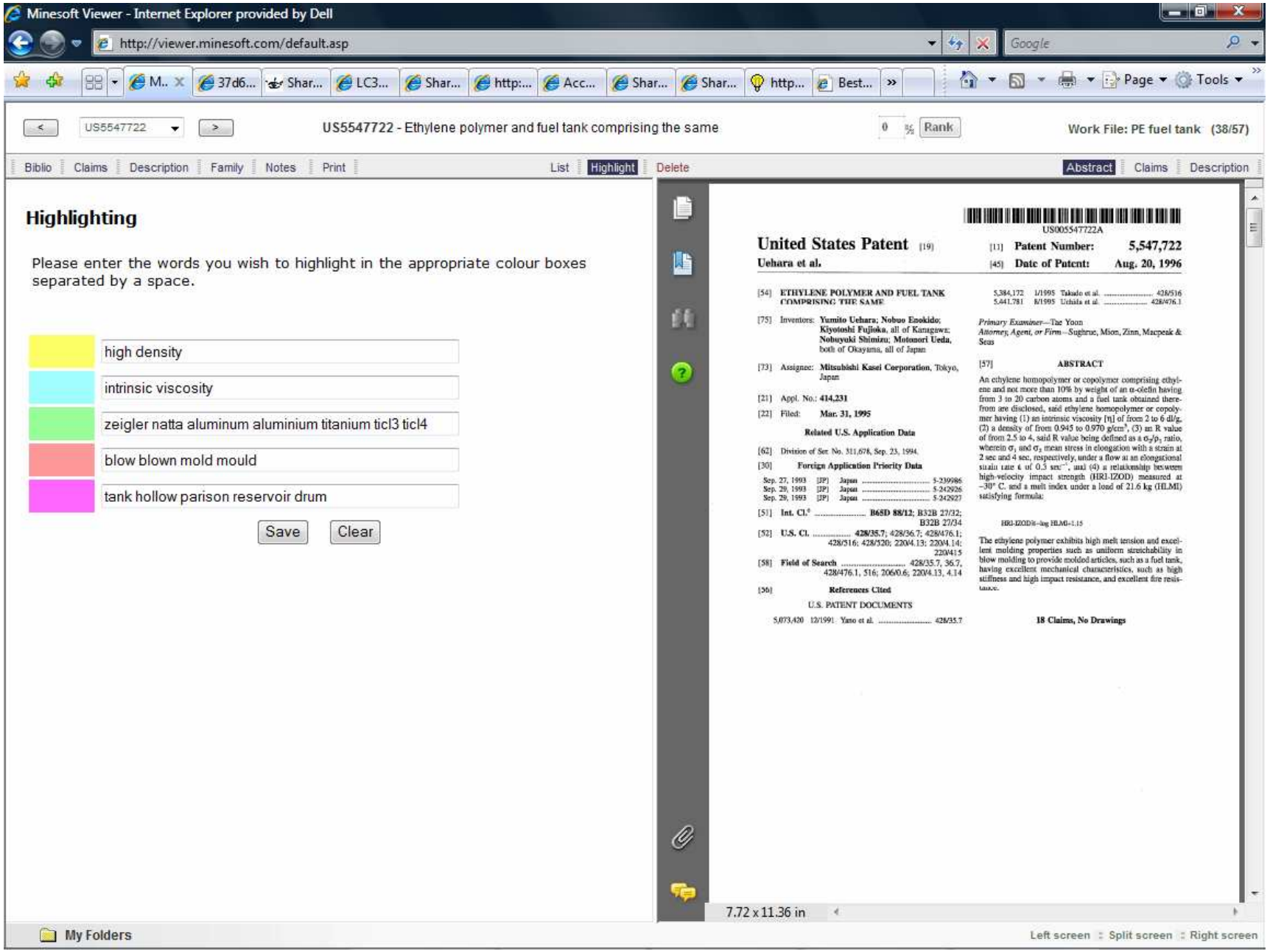
Rule 4: Be Sure You Know Why You are Rejecting Each Reference and Then Think Twice About It

- Screen and review – judgment not opinion
- Check target patent and application claims, preferably in a patent viewer with term highlighting
- Examine specification for relevant term definitions using term highlighting
- Log relevant and rejected patent numbers – create notes to annotate final table, note patent expiration
- Do not reject “family members” as a class

Evaluating References: HDPE Fuel Tank

- Transfer all patent document numbers to PatentViewer/STN Viewer/QPAT or equivalent
- Set up term highlighting
- View claims and then specification if necessary
- Log, annotate every reference with comments and relevant claims details
- Compare “family members”
- Note patent expiration





Rule 5: Present the Results in the Fashion That Your Customer Can Best Use

- Tabulate relevant references (BizInt Smart Charts, STN Table Tool, MicroPatent/PatentOrder/QPAT... Export)

Title	Assignee	Patent Number	Family Members	Key Claims & Comments

- List bibliographic information, abstracts, and/or claims – e.g., Derwent WPI records, PatentOrder output, full-text claims
- Include links to patent documents

Rule 6: Expect to Defend Your Search

- Be very clear in explaining the scope of your search
- Tabulate rejected references
- Get independent feedback on report if possible
- Be interviewed by customer about search report
- Expect iteration or further searching

Conclusions

- Use best search practices
- Follow the “rules”