

WORK AREA	1991 FUNDAMENTAL RESEARCH PROGRAM SUBJECT	RATING	EFFORT (MAN YEARS) FRC
911.01 .100	Tobacco Modification Improvement of Smoking Quality i - Effects of reconstitution process on smoking quality ii - In-situ generation of sugars and amino acids for Maillard reactions may become important in the future due to regulations on additives or additive labeling. Work could be performed at B&W since we have active programs in ROOT Technology, as well as a site for making reconstituted tobacco. iii - Determination of the properties of Marlboro worldwide is important for B&W's export business.	Done A A	4.8
.200	Product-precursor relationships (Note that focus has changed from relating tobacco components and smoke composition to use of microbial actions to achieve useful chemical and/or physical changes. This is recon driven - longer term.)	A	
911.02 .100	Total Sidestream Reduction Project Fuse Not of interest to B&W for sidestream reduction, but non-extruded COAX versions may be for reduced ignition propensity.	D	0.9
.200	Evaluation of new papers BAT evaluation of B&W's paper. We routinely evaluate any "reduced sidestream" papers submitted by suppliers on our own blends to monitor taste effects, as well as, sidestream reduction.	D	

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B.A.T. CONFIDENTIAL - CATEGORY I: MINNESOTA TOBACCO LITIGATION

BATCo document for Province of British Columbia 23 April 1999

1971 FUNDAMENTAL RESEARCH PROGRAM		APPROX (MAN-YEARS) FRC
WORK AREA	SUBJECT	RATING
911.03	Ultra light-weight structures Could be of interest for physical properties improvement without increasing tobacco weight.	2.0
.100	Ultra light-weight materials based on tobacco	2.4
911.04	Filter Materials	
.100	Degradability of Cellulose Acetate Filters Needed by BATCF and B&W, since we anticipate degradability issues eventually reaching the U.S. Believe the work should be addressed by suppliers or outside agencies, since we do not plan on making filter fibers.	A
.200	Carbon and Zeolite Filters A better understanding of carbon filters is vital to export business along with sensory effects on our blends. Hydrophobic zeolites may improve smoke quality, but would need to be evaluated on our blends with U.S. consumer testing. Not convinced of feasibility of CO reduction.	
911.05	Tar Modification May be of interest for the future depending on competitive activities in this area.	3.6
.001	Tobacco Based Smoking Materials Main interest is in tobacco based sheet materials, not in use of additives to modify smoke composition.	

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WORK AREA	1991 FUNDAMENTAL RESEARCH PROGRAM SUBJECT	RATING	EFFORT (MAN YEARS) FRC
911.06 .100	<p>Chemosensory Research</p> <p>Impact and Irritation</p> <p>ROOT Technology is considered vital to achieving objectives.</p> <p>B&amp;W should be a center for this work, as well as work involving Y1 to modify tar/nicotine ratios.</p> <p>Effects of moisture content and rod density for different blends on irritation.</p> <p>Impact and irritation produced by inclusion of high nicotine blends.</p> <p>Time-Intensity profiling of impact/irritation.</p> <p>Contract work into physiological aspects of impact and irritation.</p> <p>Irritancy of specific optical isomers (stereoisomers) of nicotine and menthol."</p> <p>Hydrophobic/phillic (Repel/attract) effects upon impact sensation".</p> <p>Magnesium ion effect upon impact".</p> <p>Irritancy of smoke vapor phase". (Taste effects of vapor phase are of high interest.)</p> <p>Non-human tests for irritation".</p>	<p>A</p> <p>Done</p> <p>A</p> <p>Done</p> <p>D</p> <p>D</p> <p>D</p> <p>D</p> <p>D</p>	<p>6.7</p> <p>?</p>

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.200	<p>Aftertaste</p> <p>An important sensory area with very little understanding.</p> <p>(a) Mouth drying</p> <p>(b) Chemical changes in saliva and mouth-washing after smoking</p> <p>(c) Panel testing for aftertaste</p>	A A A A	
.300	Sensations of body and mouthful of smoke	A	
.400	A similar situation to Aftertaste.	A	
	Chemosensory effects due to smoking behavior	Done	
	Puff-by-puff responses."	D	
	Factors which cause puff-by-puff changes in smoking behavior"	D	
	Puff volume effects."	D	
911.07	Special analytical projects		5.5**
.100	Smoking Quality Superiority: Ammonia Technology		
	<p>I - Reaction Flavors - B&amp;W has superior analytical techniques and BATCF has superior methods for generation of reaction flavors.</p> <p>II - Reconstituted Sheets - FRC is the only group within BAT that has solid state IMK capabilities.</p> <p>III - Product Extract Fractionation - Fractionation of GEL components is considered important. B&amp;W has superior analytical capabilities in this area.</p> <p>IV - Decomposition products.</p>	A A A A	

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WORK AREA	1991 FUNDAMENTAL RESEARCH PROGRAM SUBJECT	RATING	EFFORT (MAN_YEARS) FRC
.200	Smoking Quality Superiority: Labelled Studies All areas could be contracted out to laboratories with radioactive capabilities. I - Acetamide formation II - DAP-Role of Phosphate III - DAP-Pyrazine formation	A A A	
.300	Smoking Quality Superiority: Other Investigations I - Sulphur compounds in smoke - Could be the next ROOT technology. However, better understanding of ammonia effects should take priority. Needed long-term. II - Propylene glycol derivatization - Useful for better understanding of PH processing effects on smoke quality and non-menthol superiority.	B ✓ A	
.400	Support Services: Chemical Analysis	D	
.500	Support Services: Specialized Analysis	D	
.600	Components of Tobacco and Smoke Database	D	
911.08	Smoke formation and transfer		2.8
.100	Compound release and transfer	D -	45% 100%
.200	Sidestream formation mechanisms	D	

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WORK AREA	1991 FUNDAMENTAL RESEARCH PROGRAM SUBJECT	RATING	EFFORT (MAN YEARS) FRC
.300	Compound Migration  Packaging solvents are our main interest. Sensory effects and analytical methods are currently being developed at B&W.	A ✓	
911.09	Quality: Tobacco physical properties  Similar work is ongoing at B&W as part of superiority projects.		1.5
.100	Tobacco rod physical properties	A	
911.10	ETS  Relevant scientific data have already been collected and reported. Legislative issues have passed beyond scientific issues into emotional/political realm.		2.2
.100	The fundamental nature of ETS	D	
.200	Determination of personal exposures to ETS	D	
911.11	Reduced ignition potential cigarettes  Primarily an issue in the U.S. B&W has active project in this area. BATI and B&W should continue to be involved on CORESTA task force.		1.0
.100	Direct method development	A /	
.200	Indirect method development	A /	
911.12	Bioassays  Overall, a working knowledge of bioassay techniques should be maintained (Monitoring, not developing/applying). We do not anticipate U.S. regulatory activity in this area.		3.4

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.100	In vitro genotoxicity bioassays	B	
.200	Estimation of in vivo genotoxic activity	B	
.300	Development of methods for non-genotoxic assessment of additives	B	
.400	Establishment of in vitro cytotoxicity tests for application to cigarette smoke	B	
911.13	Additives and Materials Guidance  A working knowledge of legislative requirements for different countries is necessary for export products.	A - ?	3.4
.100	Additives and materials guidance panel	D	0.2
911.14	Technical support CAC  Do not anticipate B&W needing this unscheduled support		
911.15	CORESTA, etc.  BATI should maintain presence on these committees	A	0.2

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WORK AREA	1991 FUNDAMENTAL RESEARCH PROGRAM		EFFORT
	SUBJECT	RATING	(MAN YEARS) FRC
911.16	LIS	D	2.0
	B&W uses these services very little		
	Administration***		3.4
	Project Services		0
	Computing Services		0
	Total		46.0
	Non-FRC work (Analysis)		1.2
	Non-FRC work (LIS)		1.4
	Net effort		48.6

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- \* Effort from BAT Co. Ltd. Technology Center, Management Services Department (Computing) and Southampton Personnel, Administration and Site Services Department.
- \*\* Analytical effort on specific projects is included within those projects.
- \*\*\* Includes 3 secretaries, safety, reception, personnel, etc.
- \* New work area

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